AS 2505.4:2026
ISO 7801:2024

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Metallic materials

Method 4: Wire — Reverse bend test (ISO 7801:2024, IDT)



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Australian Pipelines and Gas Association
Bureau of Steel Manufacturers of Australia
Materials Australia
National Association of Testing Authorities Australia
University of Technology Sydney
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This page explains the meaning of the language and structure of this Standard.

Refer to Standards Australia's Standardisation Guide 006 for more details about drafting rules.

Australian and Australian/New Zealand Standards are voluntary unless they are referenced in legislation or called up in contracts.

Requirements

To conform to a Standard, all requirements in the Standard need to be met.

A requirement is any statement in the Standard which uses the word "shall".

Recommendations, permissions and possibilities

The following words are commonly used in Standards, but statements using them do not have to be followed to conform to the Standard:

(a) "should" means that something is recommended.

(b) "may" means that something is permitted.

(c) "can" means that something is possible.

Structure of Standards

A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply.

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

Preface

This Standard was prepared by the Standards Australia Committee MT-006, Mechanical Testing Of Metals to supersede AS 2505.4:2002, *Metallic materials, Method 4: Wire - Reverse bend test*.

The objective of this document is to specify a method for determining the ability of metallic wire of diameter or characteristic dimension from 0.3 mm to 10 mm to undergo plastic deformation during reverse bend test.

This document is identical to, and has been reproduced from, ISO 7801:2024, *Metallic materials — Wire — Reverse bend test.*

As this document has been reproduced from an international document, a comma is to be read as a full point when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals,* Subcommittee SC 2, *Ductility testing.*

This second edition cancels and replaces the first edition (ISO 7801:1984), which has been technically revised.

The main changes are as follows:

— symbols for typical shaped wires have been added;

— examples of the cross-section of round wire, shaped wire and clad wire are shown in Figure 1;

— Table 1 has been adjusted to include the limits of the diameter and the symbol, *y,* of distance and tolerance;

— the rule of tensile force for reverse bend test has been updated;

— the definition of test ending criterion has been changed for ease of application;

— Annex A has been added to provide information on the testing cylindrical support radius for shaped wires;

— Annex B has been added to provide information on devices applying force to test pieces.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Metallic materials

Method 4: Wire — Reverse bend test (ISO 7801:2024, IDT)

1 Scope

This document specifies a method for determining the ability of metallic wire of diameter or characteristic dimension from 0.3 mm to 10 mm to undergo plastic deformation during reverse bend test.

The range of applicable diameters or characteristic dimensions is more precisely specified in the relevant product standard.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Symbols

The symbols and designations used in reverse bend test of round wires and shaped wires are shown in Figure 1.

d	diameter of a round wire (if clad wire, it means outer diameter)	mm
d_g	diameter of guide hole	mm
F	applied tension force	N
h	characteristic dimension for a shaped wire (e.g. the characteristic dimension for some shaped wires is the height of the cross-section and is usually specified in the relevant standard)	mm
L	distance from the top tangential plane of cylindrical supports to the bottom face of guide	mm
N_b	number of reverse bends	—
r	radius of cylindrical supports	mm
y	distance from a plane, defined by the axes of the cylindrical supports, to the top edge of gripping faces	mm

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