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## Destructive tests on welds in metallic materials — Bend tests

*Essais destructifs des soudures sur matériaux métalliques — Essais de  
pliage*



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# Contents

Page

Foreword.....	iv
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>1</b>
<b>3 Terms and definitions.....</b>	<b>1</b>
<b>4 Symbols and abbreviated terms.....</b>	<b>8</b>
<b>5 Principle.....</b>	<b>8</b>
<b>6 Preparation of test specimens.....</b>	<b>8</b>
6.1 General.....	8
6.2 Location.....	9
6.3 Marking.....	9
6.4 Heat treatment and/or ageing.....	9
6.5 Extraction.....	9
6.6 Specimen size.....	9
6.6.1 Transverse root and face bend tests of a butt weld (TRBB and TFBB).....	9
6.6.2 Transverse side bend tests of a butt weld (TSBB).....	9
6.6.3 Longitudinal bend tests of a butt weld (LFBB and LRBB).....	10
6.6.4 Face bend tests of cladding material without a butt weld (FBC).....	10
6.6.5 Side bend tests of cladding material without a butt weld (SBC).....	10
6.6.6 Transverse face bend tests of cladding material with a butt weld (FBCB).....	10
6.6.7 Side bend tests of cladding material with a butt weld (SBCB).....	11
6.6.8 Dimensions.....	11
6.6.9 Surface preparation.....	12
<b>7 Conditions of testing.....</b>	<b>12</b>
7.1 Etching.....	12
7.2 Testing.....	13
7.2.1 General.....	13
7.2.2 Testing with a former.....	13
7.2.3 Testing with a roller.....	17
7.2.4 Bend testing with backing plate.....	18
7.3 Diameter of former and roller.....	20
7.3.1 Steel, nickel and nickel alloys.....	20
7.3.2 Aluminium and its alloys.....	20
7.4 Distance between and radius of parallel rollers.....	20
7.5 Bending angle.....	21
7.6 Bending elongation.....	21
<b>8 Test results.....</b>	<b>21</b>
<b>9 Test report.....</b>	<b>21</b>
<b>Annex A (informative) Example of a test report.....</b>	<b>23</b>
<b>Bibliography.....</b>	<b>24</b>

## 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 documents 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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 5, *Testing and inspection of welds*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 121, *Welding and allied processes*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 5173:2009) which has been technically revised. It also incorporates the Amendment ISO 5173:2009/Amd 1:2011.

The main changes are as follows:

- scope has been updated to introduce guided transverse bend tests with a roller and longitudinal bend tests as alternative methods of testing for heterogeneous assemblies;
- in [Clause 4](#), the testing temperature has been removed;
- [Subclause 7.2.2](#) has been modified accordingly;
- figures have been corrected;
- document has been aligned with the latest ISO/IEC Directives, Part 2.

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](http://www.iso.org/members.html). Official interpretations of ISO/TC 44 documents, where they exist, are available from this page: <https://committee.iso.org/sites/tc44/home/interpretation.html>.

# Destructive tests on welds in metallic materials — Bend tests

## 1 Scope

This document specifies a method for making transverse root, face and side bend tests on test specimens taken from butt welds, butt welds with cladding (subdivided into welds in clad plates and clad welds) and cladding without butt welds, in order to reveal imperfections on or near the surface of the test specimen which is under tension during bend testing and/or assess ductility. It also gives the dimensions of the test specimen.

In addition, this document specifies methods to be used instead of transverse bend tests with a former for welded joints when base materials, heat affected zones and/or weld metal have a significant difference in their physical and mechanical properties in relation to bending.

This document applies to metallic materials in all forms of product with welded joints made by any welding process.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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/>

### 3.1

#### **transverse face bend test specimen for a butt weld**

##### **TFBB**

transverse butt weld specimen where the face is in tension

Note 1 to entry: See [Figure 1](#).