

This is a preview of "ISO 5173:2023". [Click here to purchase the full version from the ANSI store.](#)

Fourth edition
2023-01

Destructive tests on welds in metallic materials — Bend tests

Essais destructifs des soudures sur matériaux métalliques — Essais de pliage



Reference number
ISO 5173:2023(E)

© ISO 2023

This is a preview of "ISO 5173:2023". Click here to purchase the full version from the ANSI store.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

This is a preview of "ISO 5173:2023". Click here to purchase the full version from the ANSI store.

Contents

	Page
Foreword.....	iv
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Symbols and abbreviated terms.....	8
5 Principle.....	8
6 Preparation of test specimens.....	8
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
7 Conditions of testing.....	12
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
8 Test results.....	21
9 Test report.....	21
Annex A (informative) Example of a test report.....	23
Bibliography.....	24

This is a preview of "ISO 5173:2023". Click here to purchase the full version from the ANSI store.

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).

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).

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.

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