INTERNATIONAL STANDARD

ISO 16237

First edition
2015-05-01

Mechanical joining — Destructive testing of joints — Specimen dimensions and test procedure for cross-tension testing of single joints

Assemblage mécanique — Essais destructifs des soudures — Dimensions des éprouvettes et mode opératoire d'essai de traction sur éprouvettes en croix

Reference number
ISO 16237:2015(E)

© ISO 2015



COPYRIGHT PROTECTED DOCUMENT

© ISO 2015

All rights reserved. Unless otherwise specified, 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
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Test specimens and types of tests **2**
5 Test equipment and test procedure **3**
6 Failure mode **4**
7 Test report **5**
Annex A (normative) **Types of joint failure** **6**
Bibliography **12**

© ISO 2015 – All rights reserved

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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/TC 44, *Welding and allied processes*, Subcommittee SC 6, *Resistance welding and allied mechanical joining*.

© ISO 2015 – All rights reserved

Introduction

This International standard specifies the testing procedure and the specimen shapes for cross-tension testing of mechanical joints. Items to be reported after testing are the cross tension strength as well as the fracture modes, which are given as drawings as the type of joint failure. The International Standard also includes normative references, terms and definitions and an example for a test report.

© ISO 2015 – All rights reserved

Mechanical joining — Destructive testing of joints — Specimen dimensions and test procedure for cross-tension testing of single joints

1 Scope

This International Standard specifies the geometry of the test specimens and the method for the cross-tension testing of single mechanical joints on single-lap test specimens up to a single sheet thickness of 4,5 mm.

The term "sheet", as used in this International Standard, includes extrusions and cast materials.

The purpose of the cross-tension test is to determine the mechanical characteristics and the failure types of the joints made with different joining methods.

This International Standard does not apply to civil engineering applications such as metal building and steel construction which are covered by other applicable standards.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 7500-1, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system*

3 Terms and definitions

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

3.1
cross-tension strength
CTS
F_{max}
maximum force, recorded in the test

3.2
cross-tension force
F
force, recorded in the test

3.3
crosshead displacement
s
displacement of the crosshead of the test equipment during the cross-tension test

3.4
crosshead displacement at maximum force
s_{Fmax}
displacement at which the maximum force F_{max} is recorded

© ISO 2015 – All rights reserved