
Destructive tests on welds in metallic materials — Tensile test on cruciform and lapped joints

Essais destructifs des soudures sur matériaux métalliques — Essai de traction des assemblages en croix et à recouvrement



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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Symbols and abbreviated terms	1
4 Principle	2
5 Test pieces and test specimens	2
5.1 Test pieces	2
5.2 Test specimens	2
5.2.1 Dimensions	2
5.2.2 Marking	2
5.3 Heat treatment and/or ageing	2
5.4 Extraction of test pieces	3
5.4.1 General	3
5.4.2 Steel	3
5.4.3 Surface preparation	3
6 Method of testing	6
7 Test report	7
8 Evaluation of results	7
Annex A (informative) Example of a test report	8

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).

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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*, SC 5, *Testing and inspection of welds*.

This second edition cancels and replaces the first edition (ISO 9018:2003), of which it constitutes a minor revision.

Requests for official interpretations of any aspect of this standard should be directed to the Secretariat of ISO/TC 44/SC 5 via your national standards body, a complete listing which can be found at www.iso.org.

Destructive tests on welds in metallic materials — Tensile test on cruciform and lapped joints

1 Scope

This International Standard specifies the sizes of test pieces and test specimens, and the procedure for carrying out tensile tests, for determining the tensile strength and location of fractures in welded joints with transverse stressed fillet welds.

It is applicable to metallic materials with welded cruciform and lapped joints on plates, where the term *plate* — alone or in combination — refers to plates, sheets, extruded bars or other solid sections.

Information concerning the evaluation of test results is not included in this International Standard.

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 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature*

3 Symbols and abbreviated terms

The symbols used for the tensile tests are specified in [Table 1](#) and [Figures 1](#) to [5](#).

Table 1 — Symbols and abbreviated terms

Symbol	Designation	Unit
a, a_1, a_2, a_3, a_4	Fillet weld throat thickness	mm
A_f	Fracture area ($w_f \times b$)	mm ²
b	Width of the test specimen equal to the length of fracture surface	mm
c	Free length between section to be tested and grips of testing device	mm
d	Length of test plates used	mm
f	Gap width for lapped specimens	mm
F_m	Maximum load sustained by the test specimen during testing	N
L_t	Total length of the test specimen	mm
R_m	Tensile strength (F_m/A_f)	MPa
t_1, t_2, t_3	Thicknesses of the materials used to prepare test pieces and test specimens	mm
w_f	Width of the fracture surface ^a	mm
^a See Figure 1 .		