

This is a preview of "ISO 6892-2:2018". [Click here to purchase the full version from the ANSI store.](#)

Second edition
2018-03

Metallic materials — Tensile testing — Part 2: Method of test at elevated temperature

*Matériaux métalliques — Essai de traction —
Partie 2: Méthode d'essai à température élevée*



Reference number
ISO 6892-2:2018(E)

© ISO 2018



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

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
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

This is a preview of "ISO 6892-2:2018". Click here to purchase the full version from the ANSI store.

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and designations	2
5 Principle	3
6 Test piece	3
7 Determination of original cross-sectional area (S_0)	3
8 Marking the original gauge length (L_0)	3
9 Apparatus	3
10 Test conditions	5
10.1 Setting the force zero point.....	5
10.2 Gripping of the test piece, fixing of the extensometer and heating of the test piece, not necessarily in the following sequence.....	5
10.2.1 Method of gripping.....	5
10.2.2 Fixing of the extensometer and establishing the gauge length.....	5
10.2.3 Heating of the test piece.....	6
10.3 Testing rate based on strain rate control (Method A).....	6
10.3.1 General.....	6
10.3.2 Strain rate for the determination of the upper yield strength (R_{eH}) or proof strength properties (R_p and, if required, R_t).....	6
10.3.3 Strain rate for the determination of the lower yield strength (R_{eL}) and percentage yield point extension (A_e), if required.....	6
10.3.4 Strain rate for the determination of the tensile strength (R_m), percentage elongation after fracture (A), percentage reduction area (Z), and, if required, percentage total extension at the maximum force (A_{gt}), percentage plastic extension at maximum force (A_g).....	7
10.4 Method of testing with expanded strain rate ranges (Method B).....	7
10.4.1 General.....	7
10.4.2 Rate for the determination of yield strength or proof strength properties.....	7
10.4.3 Rate for the determination of tensile strength.....	7
10.5 Choice of the method and rates.....	7
10.6 Documentation of the chosen testing conditions.....	8
11 Determination or calculation of the properties	8
12 Test report	8
13 Measurement uncertainty	9
14 Figures	9
15 Annexes	10
Annex A (informative) Addition to ISO 6892-1:2016, Annexes B and D	12
Annex B (informative) Measurement uncertainty	18
Bibliography	21

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 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 1, *Uniaxial testing*.

This second edition cancels and replaces the first edition (ISO 6892-2:2011), of which it constitutes a minor revision.

The main changes compared to the previous edition are as follows:

- a note has been added after the first sentence of [10.2.1](#);
- some references to subclauses of ISO 6892-1 have been deleted.

A list of all parts in the ISO 6892 series can be found on the ISO website.

This is a preview of "ISO 6892-2:2018". [Click here to purchase the full version from the ANSI store.](#)

Introduction

In this document, two methods of testing speeds are described. The first, Method A, is based on strain rates (including crosshead separation rate) with narrow tolerances ($\pm 20\%$) and the second, Method B, is based on conventional strain rate ranges and tolerances. Method A is intended to minimize the variation of the test rates during the moment when strain rate-sensitive parameters are determined and to minimize the measurement uncertainty of the test results.

The influence of the testing speed on the mechanical properties, determined by the tensile test, is normally greater at an elevated temperature than at room temperature.

Traditionally, mechanical properties determined by tensile tests at elevated temperatures have been determined at a slower strain or stressing rate than at room temperature. This document recommends the use of slow strain rates but, in addition, higher strain rates are permitted for particular applications, such as comparison with room temperature properties at the same strain rate.

During discussions concerning the speed of testing in the preparation of this document, it was decided to consider deleting the stress rate method in future revisions.