Metallic materials - Tensile testing - Part 3: Method of test at low temperature (ISO 6892-3:2015)

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NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 6892-3:2015 sisaldab Euroopa standardi EN ISO 6892-3:2015 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 6892-3:2015 consists of the English text of the European standard EN ISO 6892-3:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.04.2015.	Date of Availability of the European standard is 22.04.2015.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 77.040.10

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 6892-3

April 2015

ICS 77.040.10

English Version

Metallic materials - Tensile testing - Part 3: Method of test at low temperature (ISO 6892-3:2015)

Matériaux métalliques - Essai de traction - Partie 3: Méthode d'essai à basse température (ISO 6892-3:2015)

Metallische Werkstoffe - Zugversuch - Teil 3: Prüfverfahren bei tiefen Temperaturen (ISO 6892-3:2015)

This European Standard was approved by CEN on 3 January 2015.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN ISO 6892-3:2015 E

Foreword

This document (EN ISO 6892-3:2015) has been prepared by Technical Committee ISO/TC 164 “Mechanical testing of metals” in collaboration with Technical Committee ECISS/TC 101 “Test methods for steel (other than chemical analysis)” the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2015, and conflicting national standards shall be withdrawn at the latest by October 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 6892-3:2015 has been approved by CEN as EN ISO 6892-3:2015 without any modification.

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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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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 164, *Metallic materials*, Subcommittee SC 1, *Uniaxial testing*.

This first edition cancels and replaces ISO 15579:2000.

ISO 6892 consists of the following parts, under the general title *Metallic materials — Tensile testing*:

— *Part 1: Method of test at room temperature*

— *Part 2: Method of test at elevated temperature*

— *Part 3: Method of test at low temperature*

— *Part 4: Method of test in liquid helium*

Introduction

In this edition, there are two methods of testing speeds available. The first one, Method A, is based on strain rates (including crosshead separation rate) with narrow tolerances (±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.

Mechanical properties determined by tensile test at low temperatures have been determined at the same rates at room temperature. This revised part of ISO 6892 incorporates the new set of testing rates of ISO 6892-1 and ISO 6892-2, developed to reduce the variability of test results.

Metallic materials — Tensile testing —

Part 3:
Method of test at low temperature

WARNING — This International Standard calls for the use of substances and/or procedures that can be injurious to health if adequate safety measures are not taken. This International Standard does not address any health hazards, safety or environmental matters associated with its use. It is the responsibility of the user of this International Standard to establish appropriate health, safety and environmentally acceptable practices and take suitable actions for any national and international regulations. Compliance with this International Standard does not in itself confer immunity from legal obligations.

1 Scope

This part of ISO 6892 specifies a method of tensile testing of metallic materials at temperatures between +10 °C and -196 °C.

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 6892-1:2009, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature*

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*

ISO 9513, *Metallic materials — Calibration of extensometer systems used in uniaxial testing*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6892-1:2009 and the following apply.

In general, all test piece geometries/dimensions are based on measurements taken at room temperature. The exception can be the extensometer gauge length (see 3.3).

NOTE The following properties are generally not determined at low temperature unless required by relevant specifications or agreement:

— permanent set strength (R_r);

— percentage permanent elongation;

— percentage permanent extension;

— percentage yield point extension (A_e);

— percentage total extension at maximum force (A_{gt});

— percentage plastic extension at maximum force (A_g);

— percentage total extension at fracture (A_t).