BS EN ISO 6892-1:2009

BSI British Standards

# Metallic materials — Tensile testing

## Part 1: Method of test at ambient temperature



*raising standards worldwide*™

BSI British Standards

## National foreword

This British Standard is the UK implementation of EN ISO 6892-1:2009. It supersedes BS EN 10002-1:2001 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee ISE/NFE/4, Mechanical testing of metals, to Subcommittee ISE/NFE/4/1, Uniaxial testing of metals.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.



ISBN 978 0 580 56327 0

ICS 77.040.10

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2009.

## Amendments issued since publication

| Date | Text affected |
|---|---|

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN ISO 6892-1

August 2009

ICS 77.040.10

Supersedes EN 10002-1:2001

English Version

# Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1:2009)

Matériaux métalliques - Essai de traction - Partie 1: Méthode d'essai à température ambiante (ISO 6892-1:2009)

Metallische Werkstoffe - Zugversuch - Teil 1: Prüfverfahren bei Raumtemperatur (ISO 6892-1:2009)

This European Standard was approved by CEN on 13 March 2009.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

**Management Centre: Avenue Marnix 17, B-1000 Brussels**



Ref. No. EN ISO 6892-1:2009: E

# Foreword

This document (EN ISO 6892-1:2009) has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" in collaboration with Technical Committee ECISS/TC 1 “Tensile testing” 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 February 2010, and conflicting national standards shall be withdrawn at the latest by February 2010.

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.

This document supersedes EN 10002-1:2001.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

**Endorsement notice**

The text of ISO 6892-1:2009 has been approved by CEN as a EN ISO 6892-1:2009 without any modification.

# Contents

Page

 

# 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 6892-1 was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 1, *Uniaxial testing*.

This first edition of ISO 6892-1 cancels and replaces ISO 6892:1998.

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

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

The following parts are under preparation:

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

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

The following part is planned:

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

# Introduction

During discussions concerning the speed of testing in the preparation of ISO 6892:1998, it was decided to recommend the use of strain rate control in future revisions.

In this part of ISO 6892, there are two methods of testing speeds available. The first, method A, is based on strain rates (including crosshead separation rate) and the second, method B, is based on stress rates. 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.

# Metallic materials — Tensile testing —

# Part 1: Method of test at room temperature

## 1 Scope

This part of ISO 6892 specifies the method for tensile testing of metallic materials and defines the mechanical properties which can be determined at room temperature.

NOTE Annex A indicates complementary recommendations for computer controlled testing machines.

## 2 Normative references

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

ISO 377, *Steel and steel products — Location and preparation of samples and test pieces for mechanical testing*

ISO 2566-1, *Steel — Conversion of elongation values — Part 1: Carbon and low alloy steels*

ISO 2566-2, *Steel — Conversion of elongation values — Part 2: Austenitic steels*

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 extensometers used in uniaxial testing*

## 3 Terms and definitions

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

**3.1**
**gauge length**
$L$
length of the parallel portion of the test piece on which elongation is measured at any moment during the test

[ISO/TR 25679:2005[3]]

**3.1.1**
**original gauge length**
$L_o$
length between **gauge length** (3.1) marks on the piece measured at room temperature before the test

NOTE Adapted from ISO/TR 25679:2005[3].