SLOVENSKI STANDARD
SIST EN ISO 376:2012

01-februar-2012

Nadomešča:

SIST EN ISO 376:2005

Kovinski materiali - Umerjanje merilnikov sile, ki se uporabljajo za preverjanje preskusnih strojev z enoosno obremenitvijo (ISO 376:2011)

Metallic material - Calibration of force-proving instruments used for the verification of uniaxial testing machines (ISO 376:2011)

Metallische Werkstoffe - Kalibrierung der Kraftmessgeräte für die Prüfung von Prüfmaschinen mit einachsiger Beanspruchung (ISO 376:2011)

Matériaux métalliques - Étalonnage des instruments de mesure de force utilisés pour la vérification des machines d'essais uniaxiaux (ISO 376:2011)

Ta slovenski standard je istoveten z: **EN ISO 376:2011**

ICS:

77.040.10	Mehansko preskušanje kovin	Mechanical testing of metals

SIST EN ISO 376:2012 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 376

June 2011

ICS 77.040.10

Supersedes EN ISO 376:2004

English Version

Metallic materials - Calibration of force-proving instruments used for the verification of uniaxial testing machines (ISO 376:2011)

Matériaux métalliques - Étalonnage des instruments de mesure de force utilisés pour la vérification des machines d'essais uniaxiaux (ISO 376:2011)

Metallische Werkstoffe - Kalibrierung der Kraftmessgeräte für die Prüfung von Prüfmaschinen mit einachsiger Beanspruchung (ISO 376:2011)

This European Standard was approved by CEN on 4 June 2011.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, 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 376:2011: E

Contents

Page

Foreword.....3

Foreword

This document (EN ISO 376:2011) 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 December 2011, and conflicting national standards shall be withdrawn at the latest by December 2011.

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 ISO 376:2004.

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, 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 376:2011 has been approved by CEN as a EN ISO 376:2011 without any modification.

INTERNATIONAL STANDARD

ISO 376

Fourth edition
2011-06-15

Metallic materials — Calibration of force-proving instruments used for the verification of uniaxial testing machines

Matériaux métalliques — Étalonnage des instruments de mesure de force utilisés pour la vérification des machines d'essais uniaxiaux

Reference number
ISO 376:2011(E)

COPYRIGHT PROTECTED DOCUMENT

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 Symbols and their designations 1
5 Principle 2
6 Characteristics of force-proving instruments 3
7 Calibration of the force-proving instrument 3
8 Classification of the force-proving instrument 8
9 Use of calibrated force-proving instruments 10
Annex A (informative) **Example of dimensions of force transducers and corresponding loading fittings** 11
Annex B (informative) **Additional information** 18
Annex C (informative) **Measurement uncertainty of the calibration and subsequent use of the force-proving instrument** 21
Bibliography 30

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

This fourth edition cancels and replaces the third edition (ISO 376:2004), which has been technically revised (for details, see the introduction).

Introduction

An ISO/TC 164/SC 1 working group has developed procedures for determining the measurement uncertainty of force-proving instruments, and these procedures have been added to this fourth edition as a new annex (Annex C).

In addition, this fourth edition allows the calibration to be performed in two ways:

— with reversible measurement for force-proving instruments which are going to be used with increasing and decreasing forces;

— without reversible measurement for force-proving instruments which are going to be used only with increasing forces.

In the first case, i.e. when the force-proving instrument is going to be used for reversible measurements, the calibration has to be performed with increasing and decreasing forces to determine the hysteresis of the force-proving instrument. In this case, there is no need to perform a creep test.

In the second case, i.e. when the force-proving instrument is not going to be used for reversible measurements, the calibration is performed with increasing forces only but, in addition, a creep test has to be performed. In this case, there is no need to determine the hysteresis.

Metallic materials — Calibration of force-proving instruments used for the verification of uniaxial testing machines

1 Scope

This International Standard specifies a method for the calibration of force-proving instruments used for the static verification of uniaxial testing machines (e.g. tension/compression testing machines) and describes a procedure for the classification of these instruments.

This International Standard is applicable to force-proving instruments in which the force is determined by measuring the elastic deformation of a loaded member or a quantity which is proportional to it.

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/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

3 Terms and definitions

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

3.1
force-proving instrument
whole assembly from the force transducer through to, and including, the indicator

4 Symbols and their designations

Symbols and their designations are given in Table 1.