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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)

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Published in Switzerland

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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.

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).

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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.