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Leather — Physical and mechanical tests — Determination of bending force

Cuir — Essais physiques et mécaniques — Détermination de la force de flexion

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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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For an explanation of 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 www.iso.org/iso/foreword.html.

IULTCS, originally formed in 1897, is a world-wide organization of professional leather societies to further the advancement of leather science and technology. IULTCS has three Commissions, which are responsible for establishing international methods for the sampling and testing of leather. ISO recognizes IULTCS as an international standardizing body for the preparation of test methods for leather.

This document was prepared by the Physical Tests Commission of the International Union of Leather Technologists and Chemists Societies (IUP Commission, IULTCS) in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 289, *Leather*, the secretariat of which is held by UNI, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 14087:2011), which has been technically revised.

The main changes are as follows:

— 5.1.1, 5.1.2 and 5.1.3 have been revised to improve the clarity of the clamping device and its dimensions;

— Figures 1 and 2 have been revised;

— a new Figure 3 has been included;

— Clauses 6 and 7.1 have been revised to give a better understanding;

— Clause 8 has been revised and rearranged.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Leather — Physical and mechanical tests — Determination of bending force

1 Scope

This document specifies a test method for the determination of the bending force of leather.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 2418, *Leather — Chemical, physical and mechanical and fastness tests — Sampling location*

ISO 2419, *Leather — Physical and mechanical tests — Sample preparation and conditioning*

ISO 2589, *Leather — Physical and mechanical tests — Determination of thickness*

ISO 7500-1:2018, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
bending force
force exerted by the specimen on the measuring bar at a specified *bending angle* (3.2), *bending length* (3.3) and *bending rate* (3.4)

3.2
bending angle
angle at which the *bending force* (3.1) is measured

3.3
bending length
length around which the specimen is bent

Note 1 to entry: The bending length is the distance between the clamping device of the specimen and the bar onto which the force of the specimen is transferred.

3.4
bending rate
rate of bending of the specimen

Note 1 to entry: The bending rate is expressed in degrees per second (°/s).

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3.5
compression bending
compression of the grain side or coating layer of the leather during bending

3.6
extension bending
extension of the grain side or coating layer of the leather during bending

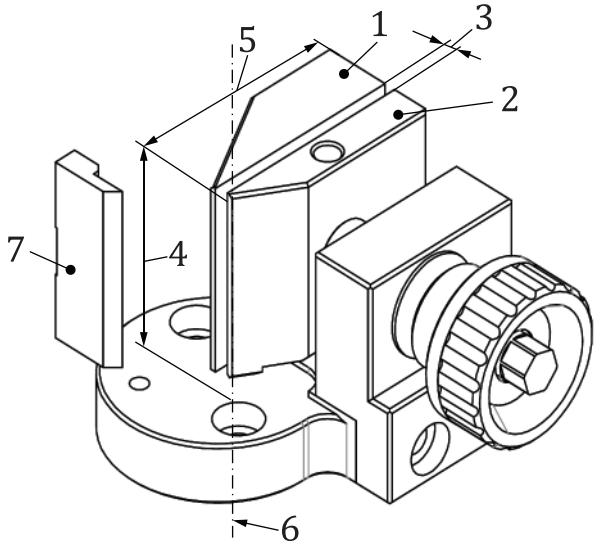
4 Principle

The bending force is determined based on the bar method (two-point bending method). In this method, the specimen is clamped in a rotating fixture. During the rotation, the specimen exerts a force onto a bar. The force acting at a specified bending angle is measured.

5 Apparatus

5.1 Device for determining the bending force according to the bar method (two-point bending method) comprising the following:

5.1.1 Clamping mechanism, in which the specimen shall be able to be clamped vertically. The clamping jaws shall have a depth of (35 ± 1) mm and a minimum width of at least 30 mm (see Figure 1). The clamping device shall enable parallel clamping with an even pressure distribution on the specimen. It shall move smoothly and allow tightening at a known clamping pressure, i.e. by a torque wrench or any other adapted method. The clamping device shall allow for affixing the specimen without it touching the bar in its initial position.



Key
1 fixed clamping jaws
2 moving clamping jaws
3 aperture > 6 mm
4 jaw width > 30 mm
5 jaw depth (35 ± 1) mm
6 pivot axis
7 vertical metering bar

Figure 1 — Clamping jaws

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