

BS EN ISO 23910:2017



BSI Standards Publication

**Leather — Physical and
mechanical tests —
Measurement of stitch tear
resistance (ISO 23910:2017)**

National foreword

This British Standard is the UK implementation of EN ISO 23910:2017. It supersedes BS EN ISO 23910:2007 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee TCI/69, Footwear, leather and coated fabrics.

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.

© The British Standards Institution 2017.
Published by BSI Standards Limited 2017

ISBN 978 0 580 86624 1

ICS 59.140.30

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 28 February 2017.

Amendments/corrigenda issued since publication

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

EUROPEAN STANDARD

EN ISO 23910

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2017

ICS 59.140.30

Supersedes EN ISO 23910:2007

English Version

Leather - Physical and mechanical tests - Measurement of stitch tear resistance (ISO 23910:2017)

Cuir - Essais physiques et mécaniques - Mesurage de la
résistance à l'arrachement au point de couture (ISO
23910:2017)

Leder - Physikalische und mechanische Prüfungen -
Messung der Stichausreißkraft (ISO 23910:2017)

This European Standard was approved by CEN on 21 December 2016.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

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

European foreword

This document (EN ISO 23910:2017) has been prepared by Technical Committee IULTCS "International Union of Leather Technologists and Chemists Societies" in collaboration with Technical Committee CEN/TC 289 "Leather" the secretariat of which is held by UNI.

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 August 2017 and conflicting national standards shall be withdrawn at the latest by August 2017.

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 23910:2007.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 23910:2017 has been approved by CEN as EN ISO 23910:2017 without any modification.

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Apparatus	1
6 Sampling and sample preparation	3
7 Procedure	3
8 Test report	4

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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 World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

ISO 23910 was prepared by the Physical Test 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).

It is based on IUP 44 originally published in *J. Soc. Leather Trades Chemists*, **84**, p. 409, (2000) and declared an official method of the IULTCS in 2001.

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 second edition cancels and replaces the first edition (ISO 23910:2007), which has been technically revised with the following changes:

- [Figure 1](#) to [Figure 3](#) have been modified.

Leather — Physical and mechanical tests — Measurement of stitch tear resistance

1 Scope

This document specifies a method for determining the stitch tear resistance of leather. It can be used on all leathers but is particularly suitable for leathers over 1,2 mm in thickness.

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 7500-1:2015, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system*

EN 15987, *Leather — Terminology — Key definitions for the leather trade*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15987 apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Principle

A leather test piece is pulled against a mandrel of specified shape and dimensions inserted through a slit in the leather and the force required to tear the leather is recorded.

5 Apparatus

5.1 Tensile testing machine, with:

- a force range appropriate to the specimen under test;
- a means of recording the force as specified by ISO 7500-1:2015, Class 2;
- a uniform speed of separation of the jaws of (100 ± 20) mm/min;
- jaws, minimum length 25 mm in the direction of the applied load, designed to apply constant clamping by mechanical or pneumatic means. The texture and design of the inside faces of the jaws shall be such that at the maximum load attained in the test, the specimen does not slip at either jaw.

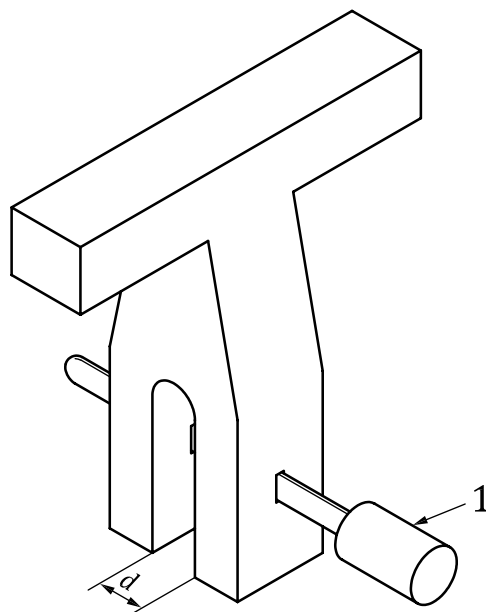
5.1.1 **Metal test piece holder**, of the shape shown in [Figure 1](#).

NOTE [Figure 1](#) shows the test piece holder with the mandrel ([5.1.2](#)) in place.

5.1.2 **Metal mandrel**, of the shape and dimensions shown in [Figure 2](#).

5.2 **Thickness gauge**, as specified in ISO 2589.

5.3 **Press knife**, conforming to the requirements of ISO 2419, the inner wall of which is a rectangle $(20 \pm 1) \text{ mm} \times (50 \pm 1) \text{ mm}$ and incorporates a further cutting edge, the inner wall of which will cut a slit in the test piece as shown in [Figure 3](#) in one operation. All parts of the press knife shall lie in the same plane.



Key

- 1 mandrel
- d* separation of arms of test piece holder, approximately 5 mm to 7 mm

Figure 1 — Metal test piece holder shown with mandrel in place

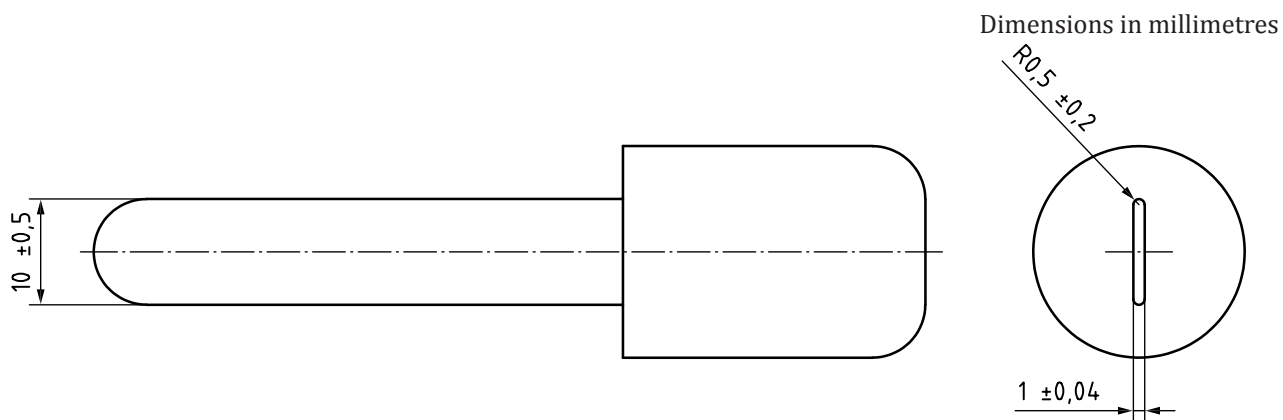
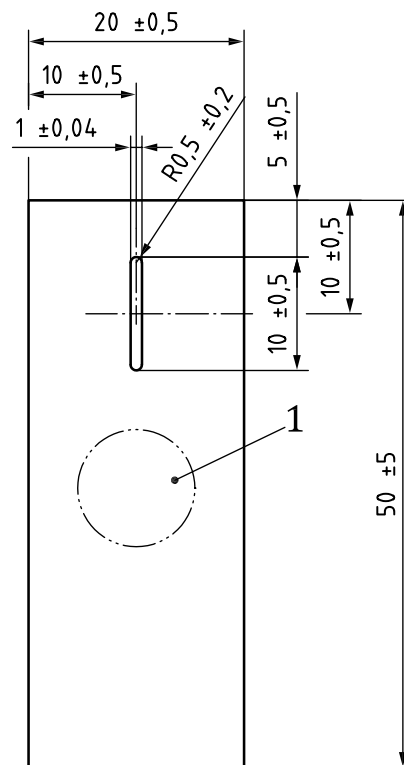


Figure 2 — Metal mandrel

Dimensions in millimetres



Key

1 thickness measurement position

NOTE The dimensions associated with the slit are those of the press knife (5.3).

Figure 3 — Test piece

6 Sampling and sample preparation

6.1 After conditioning in accordance with ISO 2419, sample in accordance with ISO 2418. Cut six test pieces by applying the press knife (5.3) to the grain surface. Cut three test pieces with the longer edge parallel to the backbone and three with the longer edge perpendicular to the backbone. The slit shall be cut with the press knife. A subsequent cut with a knife or a similar tool is not permitted.

If there is a requirement for more than two hides or skins to be tested in one batch, then only one sample in each direction needs to be taken from each hide or skin, provided that the overall total is not less than three test pieces in each direction.

6.2 Condition the test pieces in accordance with ISO 2419.

7 Procedure

7.1 Measure the thickness of the test piece in accordance with ISO 2589 at a single point on each of the test pieces. This measurement should be taken at a point approximately 10 mm from the cut end of the slit (see Figure 3).

7.2 Grip the upper end of the metal test piece holder (5.1.1) in the upper jaw of the tensile testing machine.

7.3 Place the perforated end of the test piece between the arms of the test piece holder and pass the mandrel (5.1.2) through both the holes in the test piece holder and the slit in the test piece.

7.4 Clamp the free end of the test piece in the lower jaw of the tensile testing machine.

7.5 Run the tensile test machine until the test piece is torn apart and record the maximum force, in newtons, recorded during the tearing.

7.6 Repeat 7.1 to 7.5 for other test pieces.

8 Test report

The test report shall include the following:

- a) a reference to this document, i.e. ISO 23910:2017;
- b) the thickness of the leather, in millimetres;
- c) the mean tear load in newtons (N) to the nearest 0,1 N for test pieces with the longer edge cut parallel to the backbone;
- d) the mean tear load in newtons (N) to the nearest 0,1 N for the test pieces with the longer edge perpendicular to the backbone;
- e) the average tear load to the nearest 0,1 N [i.e. the arithmetic mean of c) and d)], if required by customer or in specifications;
- f) the standard atmosphere used for conditioning and testing as given in ISO 2419;
- g) any deviations from the method specified in this document;
- h) full details for identification of the sample and any deviation from ISO 2418 with respect to sampling.

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards-based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Copyright in BSI publications

All the content in BSI publications, including British Standards, is the property of and copyrighted by BSI or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use.

Save for the provisions below, you may not transfer, share or disseminate any portion of the standard to any other person. You may not adapt, distribute, commercially exploit, or publicly display the standard or any portion thereof in any manner whatsoever without BSI's prior written consent.

Storing and using standards

Standards purchased in soft copy format:

- A British Standard purchased in soft copy format is licensed to a sole named user for personal or internal company use only.
- The standard may be stored on more than 1 device provided that it is accessible by the sole named user only and that only 1 copy is accessed at any one time.
- A single paper copy may be printed for personal or internal company use only.

Standards purchased in hard copy format:

- A British Standard purchased in hard copy format is for personal or internal company use only.
- It may not be further reproduced – in any format – to create an additional copy. This includes scanning of the document.

If you need more than 1 copy of the document, or if you wish to share the document on an internal network, you can save money by choosing a subscription product (see 'Subscriptions').

Reproducing extracts

For permission to reproduce content from BSI publications contact the BSI Copyright & Licensing team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email subscriptions@bsigroup.com.

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Useful Contacts

Customer Services

Tel: +44 345 086 9001

Email (orders): orders@bsigroup.com

Email (enquiries): cservices@bsigroup.com

Subscriptions

Tel: +44 345 086 9001

Email: subscriptions@bsigroup.com

Knowledge Centre

Tel: +44 20 8996 7004

Email: knowledgecentre@bsigroup.com

Copyright & Licensing

Tel: +44 20 8996 7070

Email: copyright@bsigroup.com

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK