

STN	Textílie Inteligentné textílie Skúšobná metóda povrchového odporu vodivých textílií pomocou bezkontaktného typu (ISO 24584: 2022)	STN EN ISO 24584 80 0927
------------	--	--

Textiles - Smart textiles - Test method for sheet resistance of conductive textiles using non-contact type (ISO 24584:2022)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 10/22

Obsahuje: EN ISO 24584:2022, ISO 24584:2022

135576



EUROPEAN STANDARD

EN ISO 24584

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2022

ICS 59.060.01

English Version

**Textiles - Smart textiles - Test method for sheet resistance
of conductive textiles using non-contact type (ISO
24584:2022)**

Textiles - Textiles intelligents - Méthode d'essai de
mesurage de la résistance superficielle de textiles
conducteurs au moyen d'un capteur de type sans
contact (ISO 24584:2022)

Textilien - Smarte Textilien - Prüfverfahren für den
Schichtwiderstand von leitfähigen Textilien unter
Verwendung des berührungslosen Typs (ISO
24584:2022)

This European Standard was approved by CEN on 18 June 2022.

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, Republic of North Macedonia, 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: Rue de la Science 23, B-1040 Brussels

EN ISO 24584:2022 (E)

Contents	Page
European foreword.....	3

European foreword

This document (EN ISO 24584:2022) has been prepared by Technical Committee ISO/TC 38 "Textiles" in collaboration with Technical Committee CEN/TC 248 "Textiles and textile products" the secretariat of which is held by BSI.

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 January 2023, and conflicting national standards shall be withdrawn at the latest by January 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 24584:2022 has been approved by CEN as EN ISO 24584:2022 without any modification.

INTERNATIONAL STANDARD

ISO 24584

First edition
2022-06

Textiles — Smart textiles — Test method for sheet resistance of conductive textiles using non-contact type

*Textiles — Textiles intelligents — Méthode d'essai de mesurage de la
résistance superficielle de textiles conducteurs au moyen d'un capteur
de type sans contact*



Reference number
ISO 24584:2022(E)

© ISO 2022

ISO 24584:2022(E)**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: 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 Principle	4
5 Apparatus	4
5.1 Apparatus for eddy current measurement.....	4
5.1.1 Eddy current instrument, which is part of an eddy current testing system.....	4
5.1.2 Eddy current sensor probe.....	4
5.1.3 Device or external software which calculates the sheet resistance from eddy current signal based on the underlying calibration.....	4
5.2 Measurement stage.....	4
5.3 Pressure plate.....	5
5.4 Stopwatch.....	6
6 Sampling and preparation of test specimen	6
7 Calibration	6
8 Test procedure	6
8.1 Measurement points.....	6
8.2 Method A: Standard procedure.....	7
8.3 Method B: Deviating procedure applying pressure to the test specimen using a pressure plate.....	8
9 Test report	8
Annex A (informative) Example of a pattern for cutting test specimens from a laboratory sample	9
Annex B (informative) Example of test results and procedure	10
Bibliography	12

ISO 24584:2022(E)

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 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.

This document was prepared by Technical Committee ISO/TC 38, *Textiles*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 248, *Textiles and textile products*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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.

Introduction

Conductive fabrics are an important component in the design and manufacture of smart textiles. On the one hand, it is possible to use the non-destructive method for measuring the sheet resistance of fabrics of different construction and thickness described in this document for quality control of the fabrics. On the other hand, it is also suitable for quantitatively determining the sheet resistance of the conductive fabric, which is needed for the design and manufacture of electronic (smart) textile products.

The eddy current method is a method applied for the characterization of electrical properties such as sheet resistance, conductivity and local magnetization. Typically, an alternating electromagnetic field (primary field) is inducing eddy currents in the flat electrically conductive sample of interest. According to Lenz' law, the induced eddy currents generate a secondary electromagnetic field which is opposed to the primary field. The interaction of the primary field with the secondary field is a function of the sheet resistance of the present conductive layers. This principle is applied to electrically characterize layers without establishing an electrical contact. Generally, there are variants of measurements in physical contact and without physical contact of an electrically isolated eddy current sensor. The non-contacting mode allows investigating specimen without any mechanical impact as a potential source of damage or artefacts. It is possible to implement the primary field induction and the resulting field measurement at different positions. The industry is using various probe types and sizes for eddy current testing (see ISO 12718 and ISO 15549).

Textiles — Smart textiles — Test method for sheet resistance of conductive textiles using non-contact type

1 Scope

This document describes the measurement for the determination of the sheet resistance of conductive textile structures or conductive structures by using eddy current technology in reflection mode setup/arrangement.

It is applicable to conductive textile structures or conductive structures intended for application in/to textiles in the form of sheets (woven fabric, knitted fabric, nonwoven, coated fabric) where the area is formed by intersecting surfaces having conductive textile material.

It is also applicable to multilayer structures containing both insulating and conductive layers.

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 139, *Textiles — Standard atmospheres for conditioning and testing*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN