TSIVIILKÄIBES OLEVAD LÕHKEAINED. DETONAATORID JA DETONEERNÖÖRIDE RELEED. OSA 24: IMPULSI SIIRDETORU ELEKTRI MITTEJUHTIVUSE MÄÄRAMINE

Explosives for civil uses - Detonators and detonating cord relays - Part 24: Verification of electrical non-conductivity of shock tubes

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13763-24:2025 sisaldab Euroopa standardi EN 13763-24:2025 ingliskeelset teksti.	This Estonian standard EVS-EN 13763-24:2025 consists of the English text of the European standard EN 13763-24:2025.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.10.2025.	Date of Availability of the European standard is 01.10.2025.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

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English Version

Explosives for civil uses - Detonators and detonating cord relays - Part 24: Verification of electrical non-conductivity of shock tubes

Explosifs à usage civil - Détonateurs et relais pour cordeau détonant - Partie 24 : Vérification de la non conductivité électrique des tubes à transmission d'ondes de choc

Explosivstoffe für zivile Zwecke - Zünder und Sprengschnurverzögerer - Teil 24: Überprüfung der elektrischen Nichtleitfähigkeit

This European Standard was approved by CEN on 29 September 2025.

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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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 13763-24:2025) has been prepared by Technical Committee CEN/TC 321 “Explosives for civil uses”, the secretariat of which is held by UNE.

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 April 2026, and conflicting national standards shall be withdrawn at the latest by April 2026.

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.

This document supersedes EN 13763-24:2002.

EN 13763-24:2025 includes the following significant technical changes with respect to EN 13763-24:2002:

a) the document title has been changed from “Detonators and relays — Part 24: Determination of the electrical non-conductivity of shock tube” to “Detonators and detonating cord relays — Part 24: Verification of electrical non-conductivity of shock tubes”;

b) the Scope has been revised to clarify the covered and the not covered explosives;

c) the normative references have been updated;

d) the Clause 4 “Principle” has been added;

e) the Clause “Apparatus” including Figure 1 has been updated;

f) the Clause “Test pieces” is now called “Preparation of test sample” and has been revised to include the conditioning step from former Subclause 7.1;

g) the Clause “Procedure” has been revised and further clarified;

h) the Clause 8 “Expression of results” has been added;

i) the Clause “Test report” does no longer require conformity with EN ISO/IEC 17025 and the information to be provided has been revised and extended;

j) the former Annex A “Range of applicability of the test method” has been removed;

k) the Annex ZA has been updated;

l) the Bibliography has been added and lists EN ISO/IEC 17025:2017.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

A list of all parts in the EN 13763 series, published under the general title *Explosives for civil uses — Detonators and detonating cord relays*, can be found on the CEN website.

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

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Türkiye and the United Kingdom.

1 Scope

This document specifies a test method for the verification of electrical non-conductivity of shock tubes of non-electric detonators, surface connectors and electronic detonators, and of shock tube as bulk product.

This document does not apply to electric detonators equipped with leading wires among the products not covered by the standard, plain detonators, semi-finished detonators, detonating cord relays and electronic initiation systems.

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.

EN 13857-1:2025, *Explosives for civil uses — Part 1: Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13857-1:2025 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/

4 Principle

Non-conductivity of shock tubes is important to prevent inadvertent initiation when subjected to high voltages. The non-conductivity of a shock tube is determined by two electrical characteristics: the insulation resistance and the distance at which a flash-over occurs.

For the verification of the non-conductivity, the insulation resistance of test pieces is measured under application of a DC voltage of 500 V and it is verified that the measured values are above 100 MΩ. In addition, it is verified that inside test pieces no flash-over occurs when two needle electrodes are positioned at a distance of (20 ± 1) mm to each other.

5 Apparatus

5.1 Conditioning chamber, capable of maintaining a temperature of (20 ± 2) °C and a relative humidity of (50 ± 5) %.

5.2 Voltage source, capable of applying a DC voltage of 10 kV with a maximum permissible uncertainty of ±50 V and not more than 3,0 % ripple. The current output shall be limited to a value between 0,5 mA and 5 mA. The voltage shall be switched off automatically if the current limit is exceeded.

5.3 Insulation resistance tester, capable of measuring the resistance to the nearest 0,05 Ω with a maximum permissible uncertainty of 1 % when applying (500 ± 10) V DC.

5.4 Conductive paint, based on silver, copper, nickel or graphite.

5.5 Amperemeter, capable of being read to the nearest 0,01 mA.