

TSIVIILKÄIBES OLEVAD LÕHKEAINED. DETONAATORID
JA DETONEERNÖÖRIDE RELEED. OSA 20:
ELEKTRIDETONAATORITE KOGUTAKISTUSE
MÄÄRAMINE

Explosives for civil uses - Detonators and detonating
cord relays - Part 20: Verification of total electrical
resistance of electric detonators

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN 13763-20:2025 sisaldab Euroopa standardi EN 13763-20:2025 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.10.2025.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN 13763-20:2025 consists of the English text of the European standard EN 13763-20:2025.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 01.10.2025.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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EUROPEAN STANDARD

EN 13763-20

NORME EUROPÉENNE

EUROPÄISCHE NORM

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Supersedes EN 13763-20:2003

English Version

Explosives for civil uses - Detonators and detonating cord relays - Part 20: Verification of total electrical resistance of electric detonators

Explosifs à usage civil - Détonateurs et relais pour cordeau détonant - Partie 20 : Vérification de la résistance électrique totale des détonateurs électriques

Explosivstoffe für zivile Zwecke - Zünder und Sprengschnurverzögerer - Teil 20: Überprüfung des elektrischen Gesamtwiderstandes elektrischer Zünder

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 13763-20:2025) 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 13763-20:2003.

EN 13763-20:2025 includes the following significant technical changes with respect to EN 13763-20:2003:

- a) the document title has been changed from “Detonators and relays — Part 20: Determination of total electrical resistance of electric detonators” to “Detonators and detonating cord relays — Part 20: Verification of total electrical resistance of electric detonators”;
- b) the Scope has been revised to clarify the covered and not covered explosives;
- c) the normative references have been updated;
- d) the Clause “Principle” has been revised;
- e) the Clause “Apparatus” has been updated;
- f) the Clause “Test pieces” is now called “Preparation of test sample”, the number of test pieces per leading wires length has been reduced and the conditioning step has been moved there from the Clause “Procedure”;
- g) the Clause 8 “Expression of results” has been added;
- h) the Clause “Test report” does no longer require conformity with EN ISO/IEC 17025 and the information to be provided has been revised;
- i) the former Annex A “Range of applicability of the test method” has been removed;
- j) the Annex ZA has been updated;
- k) 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.

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1 Scope

This document specifies a test method for the verification of the total electrical resistance of electric detonators.

This document does not apply to non-electric, electronic, plain or semi-finished detonators.

This document does not apply to detonating cord relays, surface connectors, leading wires and shock tubes, coupling accessories, 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 13763-1:2025, *Explosives for civil uses — Detonators and detonating cord relays — Part 1: Requirements*

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

For blasting operations with electric detonators, the detonators are usually connected in series. The total electrical resistance of an electric detonator depends on the electrical resistance of the leading wires and of the fuse head's bridgewire. Electric detonators with differing leading wire lengths have different total electrical resistance values. Total resistance values of electric detonators differing from the specified values can lead to misfires.

For the verification of the total electrical resistance of an electric detonator, the electrical resistance of test pieces is measured and compared with the total electrical resistance values specified for the given electric detonator.

5 Apparatus

5.1 Ohmmeter, for measuring the electrical resistance using the 4-wire method, capable of being read to the nearest 0,05 Ω with a measuring current ≤ 15 mA.

NOTE 1 The measuring current is limited to reduce the risk of inadvertent initiation of the detonator during the measurement.

NOTE 2 The 4-wire-method uses four test leads, one pair for the injected current (test lead) and the other pair for sensing the voltage across the resistive load (sense lead). Because no current flows in the sense lead, the device measures only the voltage developed across the resistance. The 4-wires-method eliminates the lead and contact resistance from the measurement and therefore it is appropriate for precise measurement of low resistance values.

5.2 Conditioning chamber, capable of maintaining a temperature (20 ± 2) °C for 1 h.