



SLOVENSKI STANDARD

SIST EN 13763-20:2004

01-januar-2004

Eksplozivi za civilno uporabo – Detonatorji in zakasnilniki – 20. del: Ugotavljanje celotne upornosti električnih detonatorjev

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

Explosivstoffe für zivile Zwecke - Zünder und Verzögerungselemente - Teil 20: Bestimmung des Gesamtwiderstandes elektrischer Zünder

Explosifs a usage civil - Détonateurs et relais - Partie 20: Détermination de la résistance globale des détonateurs électriques

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71.100.30 Eksplozivi. Pirotehnika Explosives. Pyrotechnics

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13763-20

November 2003

ICS 71.100.30

English version

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

Explosifs à usage civil - Détonateurs et relais - Partie 20:
Détermination de la résistance globale des détonateurs
électriques

Explosivstoffe für zivile Zwecke - Zünder und
Verzögerungselemente - Teil 20: Bestimmung des
Gesamtwiderstandes elektrischer Zünder

This European Standard was approved by CEN on 1 September 2003.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 13763-20:2003) has been prepared by the Technical Committee CEN/TC321 "Explosives for civil uses", the secretariat of which is held by AENOR.

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 May 2004, and conflicting national standards shall be withdrawn at the latest by May 2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of the EU Directive(s).

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this standard.

This European Standard is one of a series of standards with the generic title *Explosives for civil uses - Detonators and relays*. The other parts of this series are listed below :

prEN 13763-1	Part 1: Requirements
EN 13763-2	Part 2: Determination of thermal stability
EN 13763-3	Part 3: Determination of sensitiveness to impact
EN 13763-4	Part 4: Determination of resistance to abrasion of leading wires and shock tubes
EN 13763-5	Part 5: Determination of resistance to cutting damage of leading wires and shock tubes
EN 13763-6	Part 6: Determination of resistance to cracking at low temperatures of leading wires
EN 13763-7	Part 7: Determination of the mechanical strength of leading wires, shock tubes, connections, crimps and closures
EN 13763-8	Part 8: Determination of resistance to vibration of plain detonators
EN 13763-9	Part 9: Determination of resistance to bending of detonators
EN 13763-11	Part 11: Determination of resistance to damage by dropping of detonators and relays
EN 13763-12	Part 12: Determination of resistance to hydrostatic pressure
prEN 13763-13	Part 13: Determination of resistance of electric detonators against electrostatic discharge
prEN 13763-15	Part 15: Determination of equivalent initiating capability
prEN 13763-16	Part 16: Determination of delay accuracy
prEN 13763-17	Part 17: Determination of no-fire current of electric detonators
prEN 13763-18	Part 18: Determination of series firing current of electric detonators
prEN 13763-19	Part 19: Determination of firing impulse of electric detonators
prEN 13763-21	Part 21: Determination of flash-over voltage of electric detonators
prEN 13763-22	Part 22: Determination of capacitance, insulation resistance and insulation breakdown of leading wires

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- EN 13763-23 Part 23: Determination of the shockwave velocity of shock tubes
- EN 13763-24 Part 24: Determination of the electrical non-conductivity of shock tubes
- prEN 13763-25 Part 25: Determination of transfer capability of surface connectors and coupling accessories
- prEN 13763-26 Part 26: Definitions, methods and requirements for devices and accessories for reliable and safe function of detonators and relays
- CEN/TS 13763-27 Part 27: Definitions, methods and requirements for electronic initiation systems

Annex A is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard specifies a method for determining the electrical resistance of electric detonators.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 13857-1:2003; *Explosives for civil uses — Part 1: Terminology*.

EN ISO/IEC 17025; General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025: 1999).

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 13857-1:2003 apply.

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4 Principle

The total electrical resistance of an electric detonator is measured at the ends of the leading wires using an ohmmeter.

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5 Apparatus

5.1 Ohmmeter, capable of measuring to an accuracy of $\pm 0,05 \Omega$ with a maximum measuring current no greater than 15 mA.

Note: The limit on the maximum measuring current is an important safety feature, in order to eliminate the risk of initiation of a detonator during the test.

6 Test Pieces

Select 50 detonators of a specific type, having the same length of leading wires and the same design and construction of the leading wires and the fusehead.

EN 13763-20:2003 (E)**7 Procedure**

Transformer coupling units of magnetically coupled detonators shall be removed before testing.

Condition the detonators for 2 h at $(20 \pm 2) ^\circ\text{C}$ immediately prior to testing and carry out the test at $(20 \pm 2) ^\circ\text{C}$.

Test each detonator separately.

Place the detonator in a safety block and measure the electrical resistance at the stripped ends of the leading wires using the ohmmeter.

Record the electrical resistance in ohms for each detonator tested.

8 Test report

The test report shall conform to EN ISO/IEC 17025. In addition, the individual test results for the total resistance, in ohms, shall be given.

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Annex A
(informative)

Range of applicability of the test method

Range of applicability of the test method: - 30 ° C to + 80 ° C.

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