

SLOVENSKI STANDARD SIST EN 13763-11:2004

01-januar-2004

Eksplozivi za civilno uporabo - Detonatorji in zakasnilniki - 11. del: Ugotavljanje odpornosti detonatorjev in zakasnilnikov proti padu

Explosives for civil uses - Detonators and relays - Part 11: Determination of resistance to damage by dropping of detonators and relays

Explosivstoffe für zivile Zwecke - Zünder und Verzögerungselemente - Teil 11: Bestimmung der Widerstandsfähigkeit von Zündern und Verzögerungselementen gegen Fall

(standards.iteh.ai)

Explosifs a usage civil - Détonateurs et relais 769-11: Détermination de la résistance des détonateurs et relais a la chute catalog/standards/sist/dbb785ad-27e6-4fc2-91ecce05ee6857a9/sist-en-13763-11-2004

Ta slovenski standard je istoveten z: EN 13763-11:2003

ICS:

71.100.30 Eksplozivi. Pirotehnika

Explosives. Pyrotechnics

SIST EN 13763-11:2004

en

iTeh STANDARD PREVIEW (standards.iteh.ai)

EUROPEAN STANDARD NORME EUROPÉENNE **EUROPÄISCHE NORM**

EN 13763-11

November 2003

ICS 71.100.30

English version

Explosives for civil uses - Detonators and relays - Part 11: Determination of resistance to damage by dropping of detonators and relays

Explosifs à usage civil - Détonateurs et relais - Partie 11: Détermination de la résistance des détonateurs et relais à la chute

Explosivstoffe für zivile Zwecke - Zünder und Verzögerungselemente - Teil 11: Bestimmung der Widerstandsfähigkeit von Zündern und Verzögerungselementen gegen Fall

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.

ee05ee6857a9/sist-en-13763-11-2004



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

page

Forew	ord	3
Introd	uction	5
1	Scope	5
2	Normative references	5
3	Terms and definitions	5
4	Apparatus	5
5	Test pieces	6
6	Procedure	6
7	Test report	7
Annex	A (informative) Range of applicability of the test method	8
Annex	ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives.	9

iTeh STANDARD PREVIEW (standards.iteh.ai)

Foreword

This document (EN 13763-11:2003) has been prepared by Technical Committee CEN/TC 321 "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 EU Directive(s).

For the 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 13763-12	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
EN 13763-20	Part 20: Determination of total electrical resistance 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

EN 13763-11:2003 (E)

- 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.

iTeh STANDARD PREVIEW (standards.iteh.ai)

Introduction

Detonators, relays and surface connectors might be accidentally dropped from a loading basket, from the edge of a bench, or down an unloaded borehole. This test assesses the ability of detonators, relays and surface connectors to withstand being dropped without detonating.

1 Scope

This European Standard specifies methods for checking that a detonator, relay or surface connector will not explode when accidentally dropped onto a hard surface.

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) RD PREVIEW

EN 13857-1:2003; Explosives for civil uses - Part 1: Terminology. ai)

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

https://standards.iteh.ai/catalog/standards/sist/dbb785ad-27e6-4fc2-91ecee05ee6857a9/sist-en-13763-11-2004

3 Terms and definitions

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

4 Apparatus

4.1 Free-fall drop test

4.1.1 Clamp, with release mechanism.

4.2 Guided drop test

4.2.1 Metal tube (5 ± 0.05) m long with an inner diameter of between 1.5 times to 2.0 times the diameter of the assembly being tested.

4.2.2 Steel plate, measuring 100 mm x 100 mm x 10 mm.

5 Test pieces

5.1 Detonators

Test a total of 100 assemblies of each specific type, having the same materials, charges, dimensions and construction. The shortest wire length/shock tube length delivered from the manufacturer shall be used. 50 assemblies are tested according to 6.2 and 50 according to 6.3.

In case of delay detonators, select those in the series which contain the longest delay element.

For plain detonators, test 50 detonators of each specific type, having the same materials, charges, dimensions and construction, by the guided drop test only.

5.2 Surface connectors and relays

Select 50 assemblies of each specific type, having the same materials, charges, dimensions and construction.

6 Procedure

6.1 Test conditions

In the free-fall test, the assemblies shall be tested as delivered from the manufacturer. Both alternatives described shall be tested, and neither of them can replace the other. The test shall be carried out at ambient temperature.

6.2 Free-fall drop test for detonators (excluding plain detonators) (standards.iten.ai)

Fix the clamp and release mechanism at a vertical height of (5 ± 0.02) m above a solid concrete floor. The assembly is fixed in the clamp in such a way that the detonator faces downwards, and the height is measured between the floor and the lowest point of the assembly. Drop the assembly so that any part may hit the floor first. Repeat the test on 50 test pieces. eco5ee6857a9/sist-en-13763-11-2004

Record the number of detonators not detonated during the test.

After testing, all assemblies not detonated during the test shall be fired one at a time with the manufacturer's specified series firing current for the specific type, or in accordance with the manufacturer instruction for other devices. Record the number of detonators which do not detonate during the function test.

6.3 Guided drop test for detonators

Fix the metal tube vertically so that the lower end is positioned centrally and (10 ± 1) mm above the steel plate. The deviation from the vertical shall not exceed the outer diameter of the tube.

In the case of electric detonators or shock tube detonators, cut the leading wires or the shock tubes (2 ± 0.5) mm from the crimp or connection to the assembly's casing.

Drop the detonator from the top of the tube so that:

a) the base of the detonator hits the steel plate first, and

b) the top of the detonator hits the steel plate first.

Repeat the test on 25 detonators in each alternative a) and b).

Record the number of detonators not detonated during the test.

6.4 Drop test for surface connectors and relays

For surface connectors, remove the housing and cut off the leading wires or the shock tubes. Drop the detonator as described in 6.3.

For relays, drop them without their housing as described in 6.3. If the relay housing cannot be disassembled without destroying the relay, a free-fall drop test, as described in 6.2, shall be carried out instead of the guided drop test.

Record the number of test pieces not detonated during the test.

7 Test report

The test report shall conform to EN ISO/IEC 17025. In addition, the following information shall be given:

- a) the temperature during the test;
- b) the length of the leading wires or shock tubes on the samples;
- c) the number of detonators/connectors/relays not detonated during the drop tests;
- d) description or photographs of the arrangement of the detonator immediately before the drop;
- e) the number of detonators/connectors/relays that do not fire during the function test.

(standards.iteh.ai)