SLOVENSKI STANDARD
oSIST prEN 13630-7:2021

01-april-2021

Eksplozivi za civilno uporabo – Detonacijske in počasi goreče vžigalne vrvice – 7. del: Ugotavljanje zanesljivosti iniciacije detonacijskih vrvic

Explosives for civil uses - Detonating cords and safety fuses - Part 7: Determination of reliability of initiation of detonating cords

Explosivstoffe für zivile Zwecke - Sprengschnüre und Sicheheitsanzündschnüre - Teil 7: Bestimmung der Zuverlässigkeit der Zündung von Sprengschnüren

Explosifs à usage civil - Cordeaux détonants et meches de sûreté - Partie 7: Détermination de la fiabilité de l'amorcage des cordeaux détonants

Ta slovenski standard je istoveten z: **prEN 13630-7**

ICS:

71.100.30	Eksplozivi. Pirotehnika in ognjemeti	Explosives. Pyrotechnics and fireworks

oSIST prEN 13630-7:2021 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 13630-7

April 2021

ICS 71.100.30

Will supersede EN 13630-7:2002

English Version

Explosives for civil uses - Detonating cords and safety fuses - Part 7: Determination of reliability of initiation of detonating cords

Explosifs à usage civil - Cordeaux détonants et mèches de sûreté - Partie 7: Détermination de la fiabilité de l'amorcage des cordeaux détonants

Explosivstoffe für zivile Zwecke - Sprengschnüre und Sicheheitsanzündschnüre - Teil 7: Bestimmung der Zuverlässigkeit der Zündung von Sprengschnüren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 321.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 13630-7:2021) has been prepared by Technical Committee CEN/TC 321 "Explosives for civil uses", the secretariat of which is held by UNE.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13630-7:2002.

In comparison with the previous edition, the following technical modifications have been made:

a) the normative references have been updated;

b) in Clause 3, Terms and definitions, the terms 3.1 and 3.2 have been added;

c) Annex A, *Range of applicability of the test method*, has been removed

d) Annex ZA has been updated.

This document has been prepared under a Standardization Request (M/562) annexed to the Commission Implementing Decision C(2019)6634 final as regards Explosives for civil uses given to CEN by the European Commission and the European Free Trade Association, and supports Essential Safety requirements of Directive 2014/28/EU.

For relationship with Directive 2014/28/EU, see informative Annex ZA, which is an integral part of this document.

EN 13630, *Explosives for civil uses — Detonating cords and safety fuses*, is currently composed of the following parts:

— *Part 1: Requirements*

— *Part 2: Determination of thermal stability of detonating cords and safety fuses*

— *Part 3: Determination of sensitiveness to friction of the core of detonating cords*

— *Part 4: Determination of sensitiveness to impact of detonating cords*

— *Part 5: Determination of resistance to abrasion of detonating cords*

— *Part 6: Measurement of resistance to tension of detonating cords*

— *Part 7: Determination of reliability of initiation of detonating cords*

— *Part 8: Determination of resistance to water of detonating cords and safety fuses*

— *Part 9: Determination of transmission of detonation from detonating cord to detonating cord*

— *Part 10: Determination of initiating capability of detonating cords*

— *Part 11: Determination of velocity of detonation of detonating cords*

— *Part 12: Determination of burning duration of safety fuses*

1 Scope

This document specifies a method for determining the reliability of initiation of detonating cords by a detonator of defined initiating capability.

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 573-3:2019, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 3: Chemical composition and form of products*

prEN 13763-15:2021, *Explosives for civil uses — Detonators and relays — Part 15: Determination of equivalent initiating capability*

prEN 13857-1:2021, *Explosives for civil uses — Part 1: Terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 13857-1:2021 and the following apply.

3.1
witness detonator
detonator used to emphasize the output energy of a low-energy detonating cord

3.2
low-energy detonating cord
detonating cord giving an output energy not sufficient to mark the witness plate alone

4 Principle

The reliability of initiation of detonating cords is assessed by subjecting test samples to initiation by detonators of different initiating capability.

5 Apparatus

5.1 Detonator A of the equivalent initiating capability as specified by the manufacturer, determined in accordance with prEN 13763-15:2021, Table A.1.

5.2 Detonator B of the equivalent initiating capability of one level lower than that specified by the manufacturer, determined in accordance with prEN 13763-15:2021, Table A.1.

5.3 Witness plates, made from aluminium designated EN AW-6082 in accordance with EN 573-3:2019, Table 6 - Aluminium alloys - 6000 series - Al MgSi, (50 ± 10) mm long. The width and thickness of the plates shall be such that a visible indentation is made on the plate subjected to the preliminary test (see 7.2).

5.4 Witness detonator, a plain detonator that can be attached to a low-energy detonating cord.

6 Preparation of test samples

Select five pieces of detonating cord to be tested, each with a length of (1,40 m ± 0,05) m.

Seal both ends of all the test samples with the means of sealing compatible with the explosive under test (e.g. adhesive tape) to avoid leakage of explosive during testing.

NOTE The number of test samples to be tested is based the current sampling practice which is in place for decades and for which there is no evidence supporting a change for more or less samples.

7 Procedure

7.1 General

This test method is applied at ambient laboratory conditions, when it is known that within the given temperature range for use, the explosive in the detonating cord does not undergo any change of physical state.

If a change of physical state occurs within the given temperature range for use, the test shall be in addition applied at the lowest and highest use temperatures.

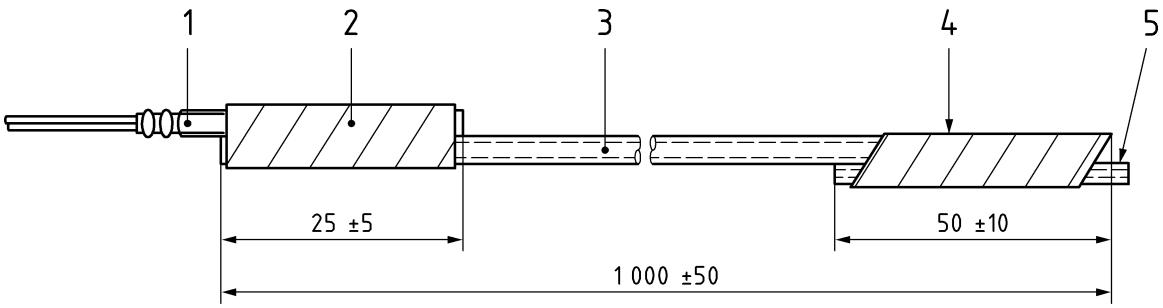
7.2 Preliminary test

Using an adhesive tape:

— attach the detonator A (5.1) at one end of the test piece, such that the base of the detonator is at a distance of (25 ± 5) mm from the end. See left part of Figure 1.

— attach a witness plate (5.3) at the other end of the test piece, such that it is overlapping (50 ± 10) mm of the test piece. See right part of Figure 1. In case of low-energy detonating cord, the witness plate is replaced by a witness detonator (5.4).

Dimensions in millimetres



Key

1 detonator A
2 adhesive tape
3 detonating cord
4 adhesive tape
5 witness plate

Figure 1 — Assembly of the test piece, detonator A and witness plate

Place the test piece, the detonator A and the witness plate (or the witness detonator) on the ground in a linear and horizontal arrangement.

Initiate the detonator A.

Record whether an indentation has been produced on the witness plate or for low-energy detonating cord if the witness detonator functioned.

For low-energy detonating cords, it is necessary to attach a witness detonator at the far end. The functioning of the witness detonator is enough. The way of attaching and the nature of the witness detonator should be recommended by the manufacturer of the detonating cord to be tested.

7.3 Determination

Repeat the procedure described in 7.2 five times, but using a detonator B (5.2).

Record if an indentation, similar to that produced in the preliminary test (7.2), has been produced on each of the witness plates or if the witness detonator functioned.

8 Test report

The test report should conform to EN ISO/IEC 17025:2017, 7.8.2 and 7.8.3. In addition, the following information shall be given:

a) reference to this document (i.e. EN 13630-7:202X);

b) initiating capability of the detonators used for the test;

c) number of trials out of five determinations in which an indentation on the witness plate was obtained.

Annex ZA
(informative)

Relationship between this European Standard and the essential safety requirements of Directive 2014/28/EU relating to the making available on the market and supervision of explosives for civil uses aimed to be covered

This European Standard has been prepared under a standardization request M/562 annexed to Commission Implementing Decision C(2019)6634 final as regards explosives for civil uses to provide one voluntary means of conforming to essential safety requirements of Directive 2014/28/EU relating to the making available on the market and supervision of explosives for civil uses.

Once this standard is cited in the Official Journal of the European Union (OJEU), under Directive 2014/28/EU, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential safety requirements of that Directive 2014/28/EU, and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Directive 2014/28/EU

Essential Safety Requirements[1] of Directive 2014/28/EU Annex II	Clause(s)/ sub-clause(s) of this EN	Remarks/Notes
I.1.	Clauses 5 to 8	The reliability of initiation is important to prevent misfire of the detonating cord with regards to the intended use defined by the manufacturer.
I.2.	Clauses 5 to 8	The minimum mean of initiation defined by the manufacturer shall reliably initiate the detonating cord to prevent misfire with regards to the intended use defined by the manufacturer.
II.1.(g)	Clauses 5 to 8	
II.1.(j)	Clauses 5 to 8	Only the correct functioning is covered by the reliability of initiation test.
II.1.(m)	Clauses 5 to 8	The reliability of initiation is important to prevent misfire of the detonating cord with regards to the intended use defined by the manufacturer. This can only be achieved by using a detonator of appropriate strength.
II.3.2.(c)	Clauses 5 to 8	Only the capability of being reliably initiated is covered by the reliability of initiation test.
[1] The Essential Safety Requirements are fulfilled together with the requirements in prEN 13630-1:2021.		

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.