



SLOVENSKI STANDARD
oSIST prEN 13630-12:2021
01-april-2021

Eksplzivni za civilno uporabo – Detonacijske in počasi goreče vžigalne vrvice – 12. del: Ugotavljanje hitrosti gorenja počasi gorečih vžigalnih vrvic

Explosives for civil uses - Detonating cords and safety fuses - Part 12: Determination of burning duration of safety fuses

Explosivstoffe für zivile Zwecke - Sprengschnüre und Sicherheitsanzündschnüre - Teil 12: Bestimmung der Brenndauer von Sicherheitsanzündschnüren

Explosifs à usage civil - Cordeaux détonants et mèches de sûreté - Partie 12: Détermination de la durée de combustion des mèches de sûreté

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ICS:

71.100.30	Eksplzivni. Pirotehnika in ognjemeti	Explosives. Pyrotechnics and fireworks
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 13630-12

April 2021

ICS 71.100.30

Will supersede EN 13630-12:2002

English Version

Explosives for civil uses - Detonating cords and safety fuses - Part 12: Determination of burning duration of safety fuses

Explosifs à usage civil - Cordeaux détonants et mèches de sûreté - Partie 12: Détermination de la durée de combustion des mèches de sûreté

Explosivstoffe für zivile Zwecke - Sprengschnüre und Sicherheitsanzündschnüre - Teil 12: Bestimmung der Brenndauer von Sicherheitsanzündschnüren

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.

This draft European Standard was established by CEN 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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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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 13630-12:2021) 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 13630-12:2002.

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

- a) the normative references have been updated;
- b) Clause 4, *Principle*, has been added;
- c) Annex A, *Range of applicability of the test method*, has been removed and the content has been revised and moved to Clause 1, *Scope*;
- 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*

prEN 13630-12:2021 (E)**1 Scope**

This document specifies methods for determining the burning duration of safety fuses.

Applicability of the test method is under environmental conditions of a field test range or blast bunker.

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.

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 apply.

4 Principle

The burning duration of safety fuses is determined by measurement of the time it takes for the combustion front to travel a known distance.

5 Apparatus**5.1 Climatic conditioning chamber**

Climatic conditioning chamber in which temperature is regulated at (20 ± 2) °C and relative humidity at (65 ± 10) %.

5.2 Supporting device

For example, V-shaped steel gutter (for safety fuses tested without confinement), at least 1 m long, positioned horizontally.

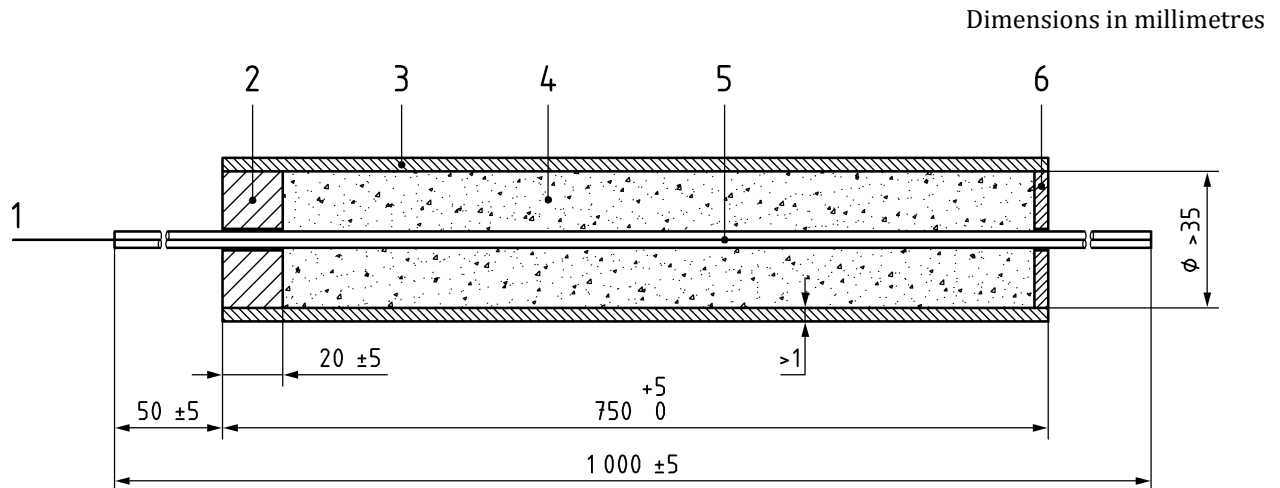
5.3 Tube

Tube with a minimum diameter of 35 mm and a minimum thickness of 1 mm, for safety fuses tested with confinement (see Figure 1).

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**Key**

- 1 point of ignition
- 2 wooden plug
- 3 tube
- 4 sand
- 5 safety fuse
- 6 cardboard disc

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Figure 1 — Schematic of confined test
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5.4 Stopwatch

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Stopwatch, accurate to 0,1 s.
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5.5 Sand

Quartz sand, dried and then sieved to pass a 1 mm aperture sieve.

5.6 Means of initiation

Means of initiation of the safety fuse: for example, matches.

6 Preparation of test samples

Select ten pieces of safety fuses to be tested, each with a length of at least 1 000 mm. The length shall be determined accurately to ± 5 mm.

NOTE The number of test samples to be tested is based on 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**

The temperature during the test shall be within the range of use given by the manufacturer.

7.2 Conditioning of test pieces

Store the test pieces in the conditioning chamber (5.1) for eight days immediately prior to testing.

prEN 13630-12:2021 (E)**7.3 Unconfined test**

Carry out the following procedure on five test pieces which have be conditioned (see 7.1).

Extend the test piece horizontally using a supporting device (5.2) without creating a confinement. Light the test piece with the mean of initiation (5.6) at one end and measure the time taken for the flame to appear at the other end using the stopwatch (5.4). Record this time or, if the test piece fails to burn along its complete length, record the result as “failed”.

7.4 Confined test

Carry out the following procedure on five test pieces which have be conditioned (see 7.1).

Place the test piece in the tube (5.3) through the wooden plug so that the length of the test piece outside the tube, at the same end as the plug, is (50 ± 5) mm (see Figure 1). Fill the tube with the sand (5.5) while maintaining the test piece under slight tension. Close the tube with the cardboard disc, threading the test piece through the hole of the disc. Ensure that the length of the test piece outside the tube at this end is 200 mm.

Light the test piece with the mean of initiation (5.6) at the shorter end and measure the time taken for the flame to appear at the other end of the test piece using the stopwatch (5.4).

Record this time or, if the test piece fails to burn along its complete length record the result as “failed”.

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 13630-12:202X);
- b) the atmospheric pressure during testing;
- c) the result of the five tests for each configuration (confined/unconfined) in the form of each burning duration (s) for a length of one metre or failed.

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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.2.	Clause 5 to 8	Applicable to safety fuses only. The burning duration specified by the manufacturer must be attained in order to ensure maximum safety and reliability.
II.3.2.(b)	Clause 5 to 8	Applicable to safety fuses only.
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.

Bibliography

- [1] prEN 13630-1:2021, *Explosives for civil uses — Detonating cords and safety fuses — Part 1: Requirements*
- [2] EN ISO/IEC 17025:2017, *General requirements for the competence of testing and calibration laboratories*

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