



SLOVENSKI STANDARD

oSIST prEN 13630-6:2021

01-april-2021

Eksplzivni za civilno uporabo – Detonacijske in počasi goreče vžigalne vrvice – 6. del: Ugotavljanje natezne trdnosti detonacijskih vrvic

Explosives for civil uses - Detonating cords and safety fuses - Part 6: Determination of resistance to tension of detonating cords

Explosivstoffe für zivile Zwecke - Sprengschnüre und Sicherheitsanzündschnüre - Teil 6:
Bestimmung der Zugfestigkeit von Sprengschnüren

Explosifs à usage civil - Cordeaux détonants et mèches de sûreté - Partis 6:
Détermination de la résistance à la tension des cordeaux détonants

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Ta slovenski standard je istoveten z: prEN 13630-6

ICS:

| | | |
|-----------|---|---|
| 71.100.30 | Eksplzivni. Pirotehnika in ognjemeti | Explosives. Pyrotechnics and fireworks |
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EUROPEAN STANDARD
NORME EUROPÉENNE
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DRAFT
prEN 13630-6

April 2021

ICS 71.100.30

Will supersede EN 13630-6:2002

English Version

Explosives for civil uses - Detonating cords and safety fuses - Part 6: Determination of resistance to tension of detonating cords

Explosifs à usage civil - Cordeaux détonants et mèches de sûreté - Partis 6: Détermination de la résistance à la tension des cordeaux détonants

Explosivstoffe für zivile Zwecke - Sprengschnüre und Sicherheitsanzündschnüre - Teil 6: Bestimmung der Zugfestigkeit 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.

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

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| Contents | | Page |
|--|--|----------|
| European foreword | | 3 |
| 1 | Scope..... | 4 |
| 2 | Normative references..... | 4 |
| 3 | Terms and definitions..... | 4 |
| 4 | Principle..... | 4 |
| 5 | Apparatus | 4 |
| 6 | Preparation of test samples | 6 |
| 7 | Procedure | 6 |
| 8 | Test report..... | 6 |
| 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..... | | 7 |
| Bibliography | iTeh STANDARD PREVIEW | 8 |

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[oSIST prEN 13630-6:2021](https://standards.iteh.ai/catalog/standards/sist/de22884c-e6be-429a-a67d-b34a8303059f/osist-pren-13630-6-2021)

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European foreword

This document (prEN 13630-6:2021) 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 13630-6:2002.

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*, terms 3.1 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 13630-6:2021 (E)**1 Scope**

This document specifies a method to determine the resistance to mechanical tension of detonating cords and safety fuses.

Applicability of the test method is ambient laboratory conditions.

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 13630-7:2021, *Explosives for civil uses — Detonating cords and safety fuses — Part 7: Determination of reliability of initiation of detonating cords*

prEN 13630-12:2021, *Explosives for civil uses — Detonating cords and safety fuses — Part 12: Determination of burning duration of safety fuses*

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 mechanical tension

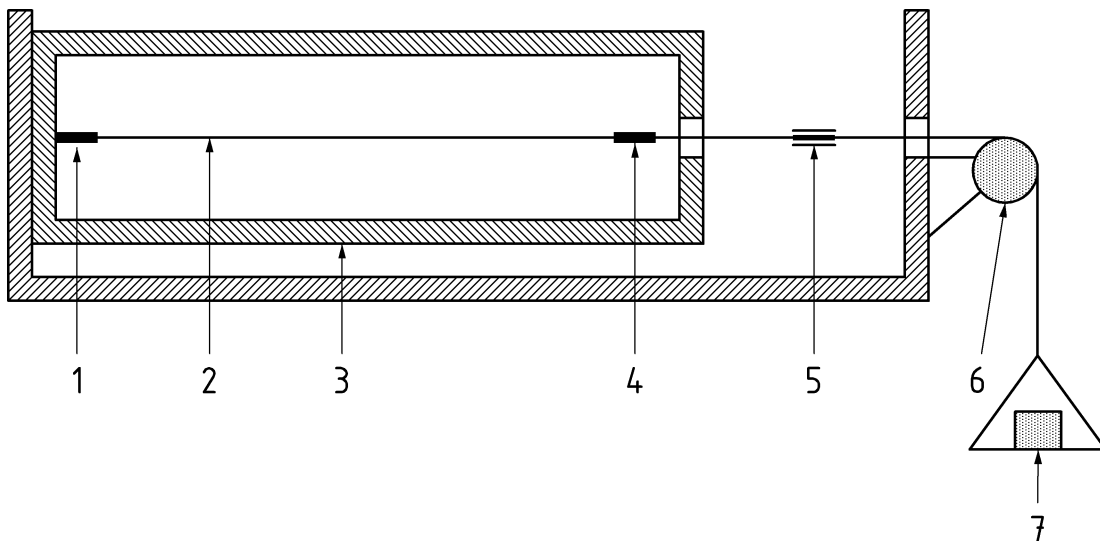
longitudinal force applied on the detonating cord

4 Principle

The resistance to mechanical tension of detonating cords and safety fuses is assessed by subjecting test samples to a given tension, for a given period of time and determine whether or not it breaks and, if it does not break, it is then tested to confirm that it will still function.

5 Apparatus

5.1 Test apparatus, an example of which is shown in Figure 1. Suitable means shall be provided for fixing the test piece at one end and attaching it (see Figure 2) to a cable supporting weights at the other end. A pulley system shall be provided so that the test piece is supported, while being able to extend freely, in either a horizontal plane (as shown in Figure 1) or a vertical plane. A blocking device shall be provided on the attachment between the test piece and the cable, or on the cable itself, so that the test piece can be held taut without applying the main force.



Key

- 1 fixed attaching device
- 2 test piece
- 3 controlled temperature enclosure (if necessary)
- 4 mobile attaching device
- 5 cable and blocking device
- 6 guiding pulley
- 7 weights

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Figure 1 — Example of testing arrangement

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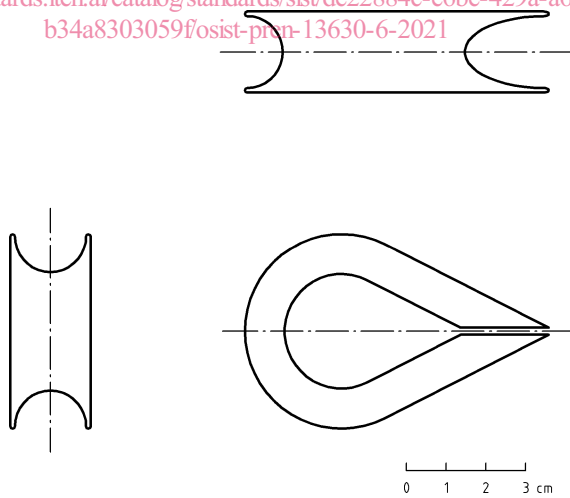


Figure 2 — Example of attaching device

5.2 Set of weights, to apply the required tensile force of 400_0^{+5} N.

prEN 13630-6:2021 (E)**6 Preparation of test samples**

Select five pieces of detonating cord or safety fuse to be tested, each with a length of $(1,40 \text{ m} \pm 0,05) \text{ m}$.

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 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

Fix a test piece in the apparatus and maintain it under slight tension sufficient to keep the test piece straight.

Maintain the test piece for 1 h at ambient temperature.

Establish the tension of 400_0^{+5} N by removing instantaneously (rapid tension) the blocking device.

Repeat the procedure for the five test pieces.

If the test piece does not break, maintain the load for 30 min. Then remove the test piece from the apparatus and test it in accordance with prEN 13630-7:2021, 7.2 for detonating cords and prEN 13630-12:2021 for safety fuses. The purpose of the subsequent test is for the determination of reliability of complete initiation of detonating cords or complete propagation of the combustion in safety fuses.

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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 13630-6:202X);
- b) the ambient conditions during testing;
- c) whether any of the test pieces broke when applying the tension or during the 30 min under tension;
- d) if no test pieces break, records: for detonating cord whether an indentation on the witness plate is obtained for each test piece after the period under tension, for safety fuses determine the burning duration for each test piece of length of 1 m.

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 resistance of the coating to mechanical tension is important to prevent external damage during handling and loading with regards to the intended use defined by the manufacturer. |
| II.1.(j) | Clauses 5 to 8 | Only the correct loading is covered by the resistance to tension test. |
| II.3.2.(a) | Clauses 5 to 8 | The coating of detonating cords is contributing to the mechanical tension strength. |
| 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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