SLOVENSKI STANDARD
oSIST prEN 13630-4:2021

01-april-2021

Eksplozivi za civilno uporabo – Detonacijske in počasi goreče vžigalne vrvice – 4. del: Ugotavljanje občutljivosti detonacijskih vrvic na udarec

Explosives for civil uses - Detonating cords and safety fuses - Part 4: Determination of sensitiveness to impact of detonating cords

Explosivstoffe für zivile Zwecke - Sprengschnüre und Sicherheitsanzündschnüre - Teil 4: Bestimmung der Schlagempfindlichkeit von Sprengschnüren

Explosifs à usage civil - Cordeaux détonants et mèches de sûreté - Partie 4: Détermination de la sensibilité au choc des cordeaux détonants

Ta slovenski standard je istoveten z: **prEN 13630-4**

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71.100.30	Eksplozivi. Pirotehnika in ognjemeti	Explosives. Pyrotechnics and fireworks

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English Version

Explosives for civil uses - Detonating cords and safety fuses - Part 4: Determination of sensitiveness to impact of detonating cords

Explosifs à usage civil - Cordeaux détonants et mèches de sûreté - Partie 4: Détermination de la sensibilité au choc des cordeaux détonants

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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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Contents

Page

European foreword

This document (prEN 13630-4:2021) 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 13630-4:2002.

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 C, *Illustrations of the BAM fall-hammer*, has been removed and the content has been moved to 5.2, *Drop hammer*, and 5.3, *Drop weight*;

e) 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 to assess a sensitiveness to a mechanical impact of detonating cords and safety fuses.

Applicability of the test method is ambient laboratory conditions. Testing at a specific temperature outside ambient can require special arrangements to condition test sample and/or equipment.

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 ISO 4957:2018, *Tool steels (ISO 4957:2018)*

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
drop height
distance between the lowest part of the striking head of the drop weight and the uppermost part of the test piece

4 Principle

A sensitiveness to mechanical impact of detonating cords or safety fuses is assessed by subjecting test samples to an impact energy of 10 J obtained by the drop of a given weight from given height.

Information on special types of use for detonating cords is given in Annex A.

5 Apparatus

5.1 General

The apparatus is a drop hammer (for example BAM fall-hammer[1)]), comprising a cast steel block with base, a main anvil and an intermediate anvil, a locating plate, a column, guides, and a drop weight with a release mechanism and a striking head.

5.2 Drop hammer

A steel anvil is screwed onto the steel block and cast base. The steel used for the intermediate anvil and the main anvil is of the same type as for the striking head of the drop weight (see 5.3). The support onto which the column is fixed (made from a seamless drawn steel tube) is bolted to the back of the steel block.

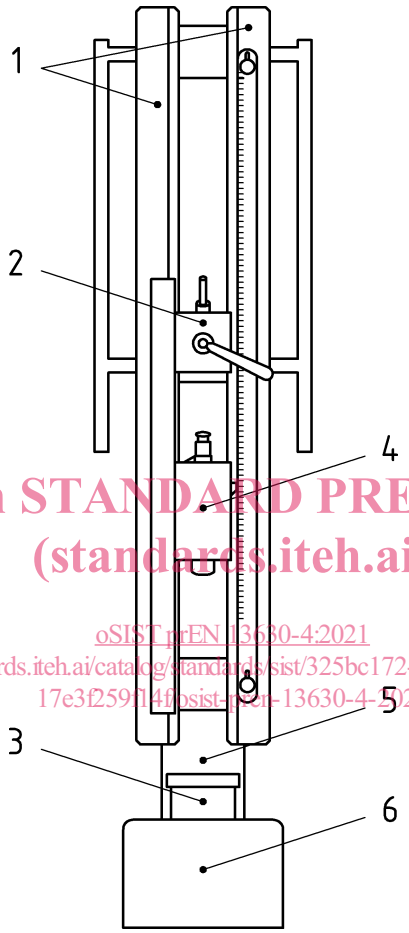
Figure 1 shows the arrangement of the fall-hammer (the anvil, the steel block and the column). Figure 2 shows the arrangement of the lower part of the fall-hammer.

[1)] BAM fall-hammer is an example of a suitable product available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by CEN of this product.

The two guides which are fixed to the column by means of three cross-pieces are fitted with a toothed rack, to limit the rebound of the drop weight, and a moveable graduated scale for adjusting the drop height. The guides shall be vertical.

The drop height shall be (500 ± 5) mm. The drop weight release mechanism is adjustable between the guides and is clamped to them by the operation of a lever mechanism.

The apparatus shall be firmly secured to a concrete block, with minimum dimensions of 0,6 m × 0,6 m × 0,6 m, by means of four anchoring bolts.

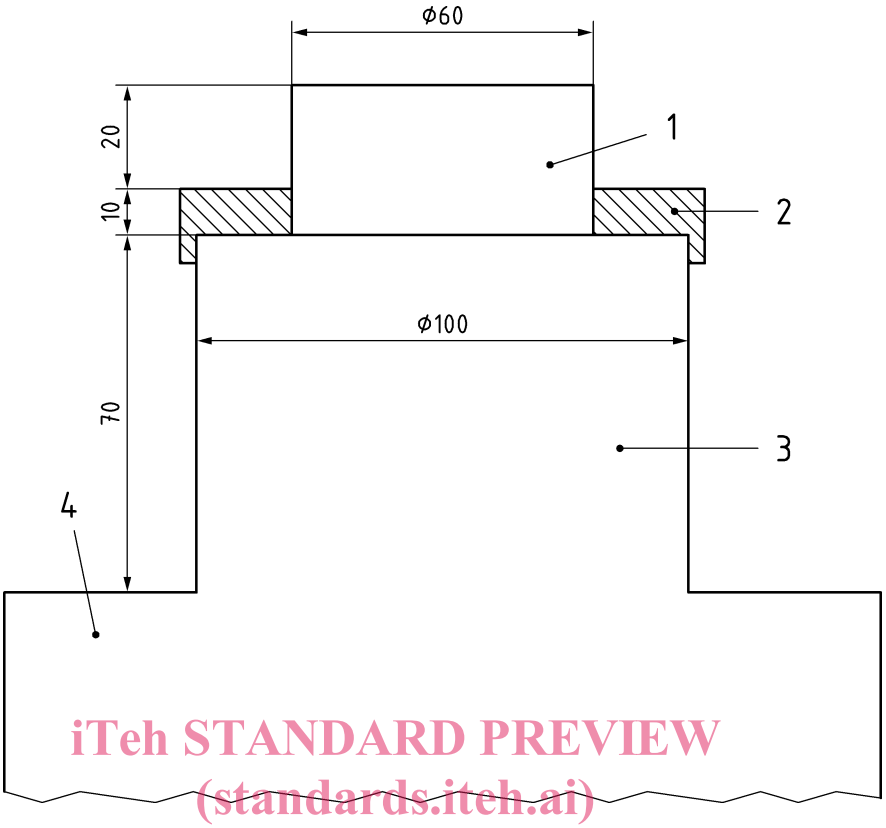


Key

1	guides
2	release mechanism
3	anvil
4	drop weight
5	column
6	steel block

Figure 1 — General arrangement of the fall-hammer

Dimensions in millimetres



Key

1	intermediate anvil
2	locating plate
3	main anvil
4	steel block

Figure 2 — Lower part of the fall-hammer

NOTE The steel block (key 4) is divided in two parallel piped blocks welded together. On the top a block of dimensions height 200 mm, length 260 mm, width 240 mm, welded on a block of dimensions height 60 mm, length and width 450 mm.

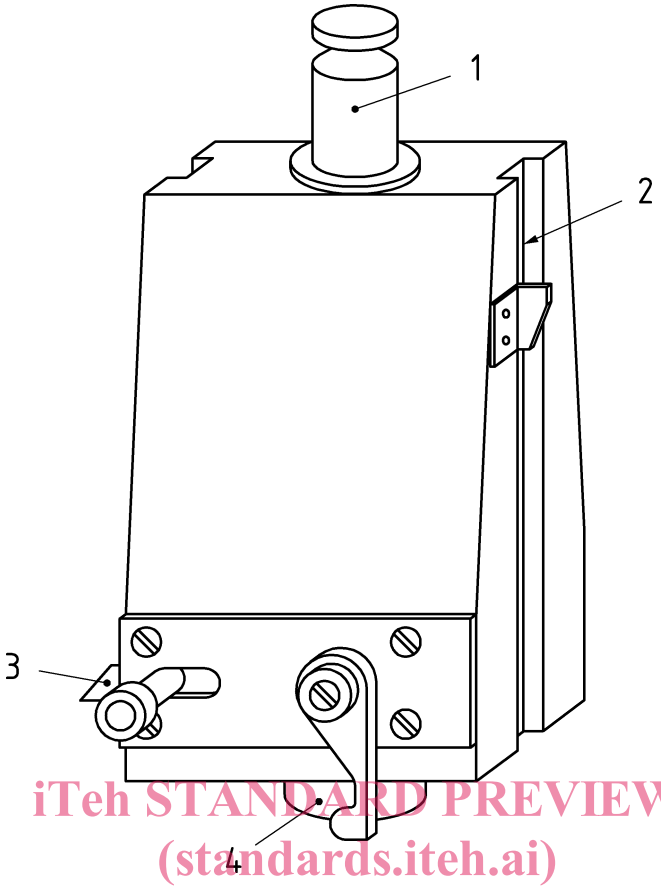
5.3 Drop weight

The drop weight has a mass of (2 000 ± 2) g and is provided with two locating grooves to hold it between the guides as it drops. A suspension spigot, a removable cylindrical striking head and a rebound catch are screwed onto the drop weight.

Figure 3 shows the design of the drop weight of the fall-hammer.

The removable striking head is made from hardened steel conforming to type 90 MnCrV8 in EN ISO 4957:2018 with a polished surface and a diameter of 25 mm.

The release mechanism shall be controlled remotely.



Key

1	suspension spigot
2	locating groove
3	rebound catch
4	striking head

Figure 3 — Drop weight of the fall-hammer

6 Preparation of test sample

Select six pieces of detonating cord of a length *L* to carry out the test. 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.

The length *L* of each test samples shall be such that there is a length of at least 30 mm at the centre of the test sample, not affected by the means of the sealing. This length of 30 mm is to be struck by the striking head of the drop weight.

7 Procedure

Fix a test sample onto the intermediate anvil, so that it is centred on the anvil, by suitable means which does not interfere with the area of the test sample to be struck by the striking head. Fix the intermediate anvil by means of the locating plate, as shown in Figure 2.

Suspend the drop weight from the release mechanism at drop height of (500 ± 5) mm. Align the test sample so that the centre of the striking head will hit the centre of the test sample. Release the drop weight and record whether an explosion or a deflagration occurs.