



SLOVENSKI STANDARD
SIST EN 517:1998

01-april-1998

Dodatna oprema za prekrivanje streh - Varnostne strešne kljuke

Prefabricated accessories for roofing - Roof safety hooks

Vorgefertigte Zubehörteile für Dacheindeckungen - Sicherheitsdachhaken

Accessoires préfabriqués pour couverture - Crochets de sécurité

Ta slovenski standard je istoveten z: EN 517:1995

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ICS:

91.060.20 Strehe Roofs

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EUROPEAN STANDARD

EN 517

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 1995

ICS 91.060.20

Descriptors: roofing, roofs, accessories, safety devices, hooks, dimensions, tests, marking

English version

Prefabricated accessories for roofing - Roof safety hooksAccessoires préfabriqués pour couverture -
Crochets de sécuritéVorgefertigte Zubehörteile für Dacheindeckungen
- Sicherheitsdachhaken**ITeH STANDARD PREVIEW**
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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CENEuropean Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Ref. No. EN 517:1995 E

Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 128 "Roof covering products for discontinuous laying", the secretariat of which is held by IBN.

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of an identical text or by endorsement at the latest by December 1995, and conflicting national standards shall be withdrawn at the latest by December 1995.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard applies to hooks situated on the surface of pitched roofs and permanently fixed to the load-bearing roof construction. They are intended for the attachment of slaters' ladders, for supporting working platforms and as anchorage points to which personal protective equipment against falls or for restraint are attached.

It specifies essential dimensions, materials to be used, requirements with respect to the load-bearing capacity, and the extent of testing.

This standard does not apply to installations which are used exclusively as anchorage points to which personal protective equipment against falls or for restraint are attached (see prEN 795).

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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 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.

- | | |
|-----------------|---|
| prEN 364 | Protection against fall from height - Test methods and common requirements |
| prEN 795 | Protection against falls from a height - Anchorage devices - Requirements and testing |
| ISO 1140 : 1990 | Ropes - Polyamide - Specification |

3 Definitions

3.1 Roof safety hook: A building element on a pitched roof surface used for securing persons and fixing loads predominantly used for the maintenance and repair of roof coverings.



3.2 Fastening system: A combination of elements which fasten the roof safety hooks to the load-bearing roof construction.

3.3 Load-bearing roof construction: That part of the roof construction which is able to carry potential loads and to transmit them into the building structure.

4 Materials

Roof safety hooks and their fastening systems shall be of metal and be resistant to corrosion as well as to atmospheric and climatic influences. The material shall be free from faults and inclusions which may impair their performance abilities.

The corrosion resistance shall be at least equivalent to that of hot-galvanized steel with a protective layer of 50 μm .

Parts of the fastening system beneath the roof covering may be from timber and shall then be protected against atmospheric and climatic influences.

5 Dimensions and construction

Roof safety hooks shall be classified as follows (see figure 1):

- Type A: Roof safety hooks designed to accept tensile forces in the direction of the slope of the roof (y-axis),
- Type B: Roof safety hooks designed to accept tensile forces in the direction of the slope of the roof (y-axis) as well as in the perpendicular direction and parallel to the roof surface (x-axis).

Roof safety hooks shall have an opening a of not less than 80 mm and not more than 150 mm. The height h of the hook shall amount to at least 120 mm. A closed loop, to which personal protective equipment against falls or for restraint may be attached, shall be fitted to the hook base. It shall have an opening of at least 20 mm x 40 mm, e. g. a closed eyelet welded on (see figure 2).

Where roof safety hooks are fastened by nails to the load-bearing roof construction at least three nails (or equivalent fasteners) shall be used.

6 Requirements

6.1 Requirements on the hook base

Roof safety hooks including the fastening systems and the roof construction shall be designed for a working load of $F_y \geq 1,5$ kN in direction of the y-axis. Under this load the distortion shall not be more than 5 mm in the y-axis.

6.2 Requirements on the anchorage point

Roof safety hooks shall be tested for absorption of dynamic loads imparted by personal protective equipment against falls or for restraint. Static and dynamic tests shall be carried out.

6.2.1 Static load

Roof safety hooks of type A and their fastening systems shall be designed to accept a single static load at the anchorage point of $F_y \geq 5$ kN in the direction of the y-axis.

Roof safety hooks of type B and their fastening systems shall be designed to accept a single static load at the anchorage point of $F_y \geq 5$ kN in the direction of the y-axis as well as a single static load of $F_x \geq 5$ kN in the direction of the x-axis.

6.2.2 Dynamic load

Roof safety hooks of type A and their fastening systems shall be designed to accept a single dynamic load at the anchorage point resulting from a mass of (100 ± 1) kg according to 7.2.3 in direction of the y-axis.

Roof safety hooks of type B and their fastening systems shall be designed to accept a single dynamic load at the anchorage point resulting from a mass of (100 ± 1) kg according to 7.2.3 in direction of the y-axis as well as in the direction of the x-axis.

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7 Testing

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7.1 General

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To confirm compliance with the requirements of clause 6 tests in accordance with 7.2 and 7.3 shall be carried out. For this purpose the roof safety hooks shall be fastened to a simulation of the load-bearing roof construction in accordance with the instructions of the manufacturer.

For each test 3 roof safety hooks shall be used. All roof safety hooks shall pass the tests.

Should any roof safety hook fail to pass a test, the correction of the defect shall be proven before further testing.

The tensile strength of the fastening system shall be calculated.

7.2 Roof safety hooks Type A

7.2.1 Test 1 (Static test at the hook base)

Apply a gradually increasing test load applied to the hook base up to a maximum value of $F_{p1} = 1,7 \times 1,5$ kN = 2,6 kN in the direction of the y-axis.

Under load the hook may rest on the surface of the roof covering. In case of a test load of 1,5 kN the hook base may not deflect more than 5 mm in direction of the force. In case of the maximum load of 2,6 kN the functioning of the roof safety hook shall not be impaired.

7.2.2 Test 2 (Static test at the anchorage point)

Apply a static test load of $F_{p2} = 1,7 \times 5 \text{ kN} = 8,5 \text{ kN}$ to the anchorage point for personal protective equipment against falls or for restraint in the direction of the y-axis.

Neither the roof safety hook nor the fastenings shall become loose and the load shall be safely held.

7.2.3 Test 3 (Dynamic test at the anchorage point - drop test)

The roof safety hook shall be fastened by its fastening system to a simulation of the load-bearing roof construction in a position between 70 and 90° from the horizontal (see figure 3).

The load and deflection criteria for the drop test shall conform with prEN 364.

For the test a hawser laid polyamide lanyard of three strands and of 12 mm diameter according to ISO 1140 shall be used.

An eye of (75 ± 10) mm size shall be spliced into each end of the lanyard with splices of 5 full tucks and equipped with carabiners. The effective length of the lanyard measured under a load of (40 ± 5) N shall be (2000 ± 50) mm.

One end of the lanyard shall be attached to the roof safety hook and at the other end to the drop mass of (100 ± 1) kg and (200 ± 2) mm in diameter shall be fastened.

The drop mass shall be suspended at a maximum horizontal distance of 300 mm from the anchorage point of the lanyard and a vertical distance of 500 mm from that point by means of a quick release device. Release the drop mass which will fall freely through (2500 ± 50) mm before the lanyard arrests the fall.

Observe any deformations and deflections of the roof safety hook and its fastenings.

7.3 Roof safety hooks Type B

7.3.1 Test 1 (Static test at the hook base)

The test shall be carried out in accordance with 7.2.1 and the test load shall be applied in the direction of the y-axis.

7.3.2 Test 2 (Static test at the anchorage point)

The test shall be carried out in accordance with 7.2.2. The test shall be performed with different roof safety hooks when the test load is applied to the y-axis and to the x-axis.

Page 6
EN 517:1995

7.3.3 Test 3 (Dynamic test at the anchorage point - drop test)

The test shall be carried out in accordance with 7.2.3. The test shall be performed with different roof safety hooks when the test load is applied to the y-axis and to the x-axis.

7.4 Evaluation

After carrying out the static and dynamic tests the fastening systems consisting of nails or wood screws as well as the load-bearing roof construction shall not have deflected more than 5 mm. Hook and anchorage point may be deformed provided that the load is still supported.

8 Test report

The test report shall make reference to this European Standard and shall include the following information:

- a) Name of the manufacturer,
- b) standard designation of the product according to clause 10,
- c) description of the product,
- d) number of tests passed and failed,
- e) largest single value and arithmetic mean of deflections as result of the static test and of the dynamic test,
- f) other changes resulting from the test load and general assessment of the product,
- g) name of the test institute, date.

9 Instructions to be provided by the manufacturer

The manufacturer of roof safety hooks shall provide instructions for the mounting of his products. They shall include all safety relevant information for storage and mounting and shall be written in the language of the country where the products are to be used.

10 Designation

Roof safety hooks shall be designated with "Roof Safety Hook", with the number of this European Standard and the letter of the type in accordance with clause 5.

Example:

Roof safety hook of type A:

Roof safety hook EN 517 - A

11 Marking

Roof safety hooks shall be marked with

- the number of this European Standard,
- the letter of the type and
- the name or trade mark of the manufacturer.

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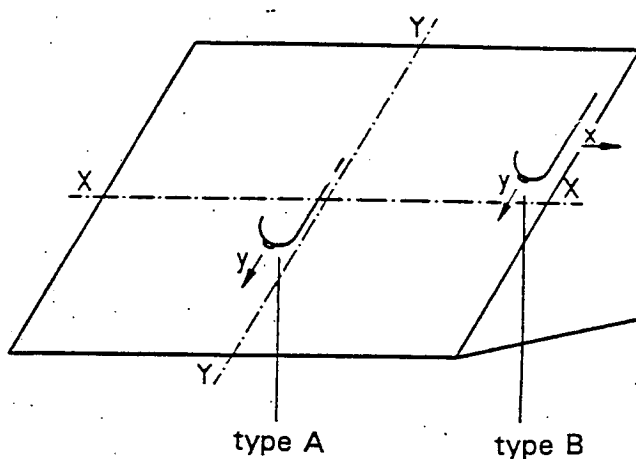


Figure 1. Roof safety hooks, types

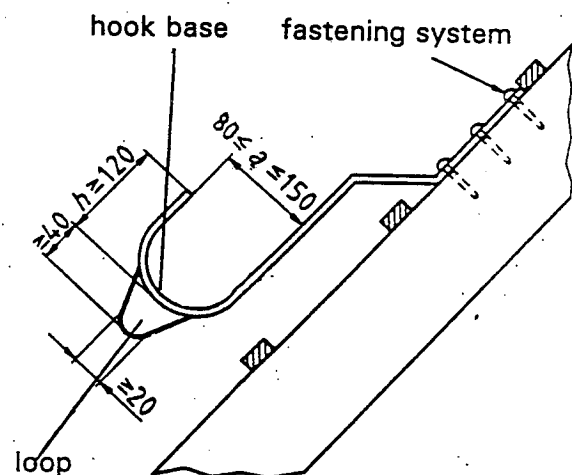


Figure 2. Roof safety hook, example