SLOVENSKI STANDARD
SIST EN 1263-1:2000

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Varovalne mreže - 1. del: Varnostne zahteve, preskusne metode

Safety nets - Part 1: Safety requirements, test methods

Schutznetze - Teil 1: Sicherheitstechnische Anforderungen, Prüfverfahren

Filets de sécurité - Partie 1: Exigences de sécurité, méthodes d'essai

Ta slovenski standard je istoveten z: **EN 1263-1:1997**

ICS:

13.340.60	Zaģļ ita pred padci in zdrsi	Protection against falling and slipping

SIST EN 1263-1:2000 **en**

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Descriptors: Buildings, site equipment, safety nets, work safety, accident prevention, specifications, definitions, designation, tests, marking

English version

Safety nets — Part 1: Safety requirements, test methods

Filets de sécurité —
Partie 1: Exigences de sécurité, méthodes d'essai

Schutznetze —
Teil 1: Sicherheitstechnische Anforderungen, Prüfverfahren

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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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CEN

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

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

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 53, Temporary works equipment, the Secretariat of which is held by DIN.

This European Standard is one of a series of standards as listed below:

EN 1263-1 *Safety nets — Part 1: Safety requirements, test methods*

EN 1263-2 *Safety nets — Part 2: Safety requirements for the erection of safety nets*

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of an identical text or by endorsement, at the latest by September 1997, and conflicting national standards shall be withdrawn at the latest by September 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of 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.

Contents

Introduction

Safety nets for use in construction and assembly work, e.g. as devices to catch falling persons or objects during the construction of halls and bridges, in open line construction as side protection, as anti-fall devices or devices to catch falling persons or objects on working scaffolds, as side protection for safety scaffolds at roofs and in tunnelling can be chosen as a technically suitable and economic solution to catch persons falling from a height. They serve to cover large sections below the area of a hall roof.

In contrast to being secured by a rope the mobility of persons working above the covered area remains fully guaranteed during all working and transporting procedures. Moreover, the use of safety nets has the advantage to softly catch persons falling from a height by large plastic deformations of the net.

Attention should be paid to the fact that the ageing sensitivity of safety nets due to exposure to UV requires that they are exposed to light to a limited time only and then be withdrawn from service. For the evaluation of the ageing behaviour short-time tests have been carried out which apply to the most commonly used materials polyamide and polypropylene. The specifications of the limit values of breaking energy are based on drop tests with articulated dummies and test spheres. After having been subjected to respective loading by persons or objects falling from height the safety nets should be replaced, if appropriate.

1 Scope

This European Standard is applicable to safety nets and their accessories for use in construction, scaffolding, falsework and assembly work and specifies safety requirements and test methods. This standard is not applicable to the installation of safety nets. For a European Standard covering the installation of safety nets see prEN 1263-2 : 1995.

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 to 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.

EN 919	*Fibre ropes for general service – Determination of certain physical and mechanical properties*
EN 10002-2	*Metallic materials – Tensile testing – Part 2: Verification of the force measuring sytem of the tensile testing machines*
EN 45001	*General criteria for the operation of testing laboratories*
EN ISO 9001	*Quality systems – Model for quality assurance in design/development, production, installation and servicing* (ISO 9001)
EN ISO 9002	*Quality systems – Model for quality assurance in production, installation and servicing* (ISO 9002)
ISO 554	*Standard atmospheres for conditioning and/or testing – Specifications*
ISO 4892-1	*Plastics – Methods of exposure to laboratory light sources – Part 1: General guidance*

3 Definitions

For the purposes of this standard the following definitions apply.

3.1 net

A connection of meshes.

3.2 safety net

A net supported by a border rope, other supporting elements or a combination of these designed to catch persons falling from a height.

3.3 mesh rope

The rope from which the meshes of a net are manufactured.

3.4 border rope

A rope which passes through each mesh at the edges of a net and determines the dimensions of the safety net.

3.5 tie rope

A rope used for securing the border rope to a suitable support.

3.6 coupling rope

A rope that joins several safety nets together.

3.7 test rope

A separate length of mesh rope or of meshes which is worked into the safety net to determine any deterioration due to ageing and which can be removed without impairing the reliability of the net.

3.8 supporting framework

A structure to which nets are attached and which contributes to the absorption of kinetic energy.

4 Types

4.1 Nets

Four types of net shall be classified. They shall have the following maximum mesh widths (l_M, see figure 6) and the following minimum breaking energies (E_A and E_B):

type A1:	E_A = 2,3 kJ;	l_M = 60 mm
type A2:	E_A = 2,3 kJ;	l_M = 100 mm
type B1:	E_B = 4,4 kJ;	l_M = 60 mm
type B2:	E_B = 4,4 kJ;	l_M = 100 mm

4.2 Safety nets

Four types of safety net shall be distinguished:

Type S: Safety net with border rope (see figure 1)

Type T: Safety net attached to consoles for horizontal use (see figure 2)

Type U: Safety net attached to supporting framework for vertical use (see figure 3)

Type V: Safety net with border rope attached to a support type gallow (see figure 4)

4.3 Ropes

Five types of rope shall be classified as follows:

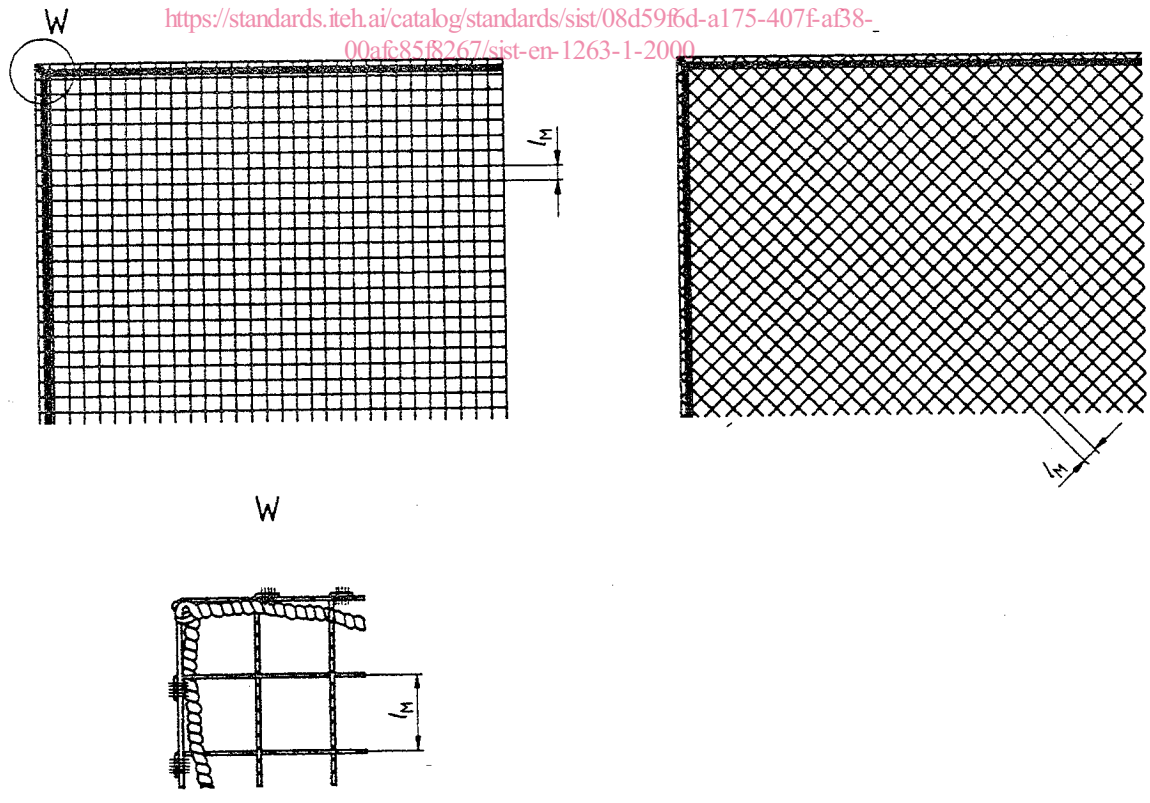
Rope type K: a rope without ends and with a tensile strength of at least 30,0 kN (border rope, see figure 5a);

Rope type L: a rope with a loop and with a tensile strength of at least 30,0 kN (tie rope, see figure 5b);

Rope type M: a rope without a loop and with a tensile strength of at least 30,0 kN (tie rope, see figure 5c);

Rope type N: a rope with a loop and with a tensile strength of at least 7,5 kN (coupling rope, see figure 5d);

Rope type O: a rope without a loop and with a tensile strength of at least 7,5 kN (coupling rope, see figure 5e).



a) square mesh (Q)

b) diamond mesh (D)

Figure 1. Safety net type S (net with border rope)

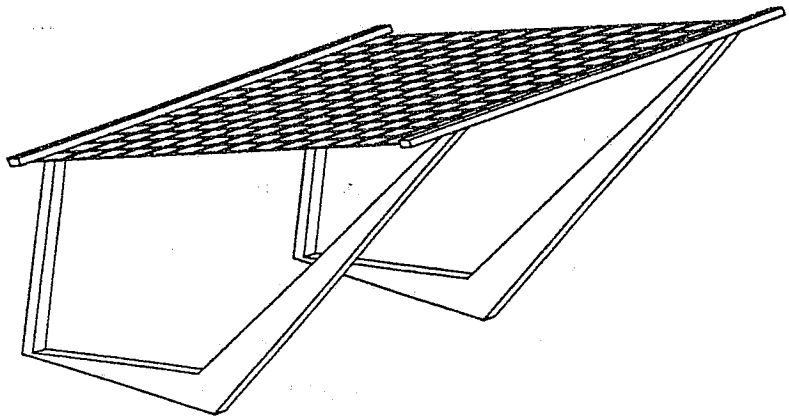


Figure 2. Safety net type T (net attached to consoles for horizontal use)

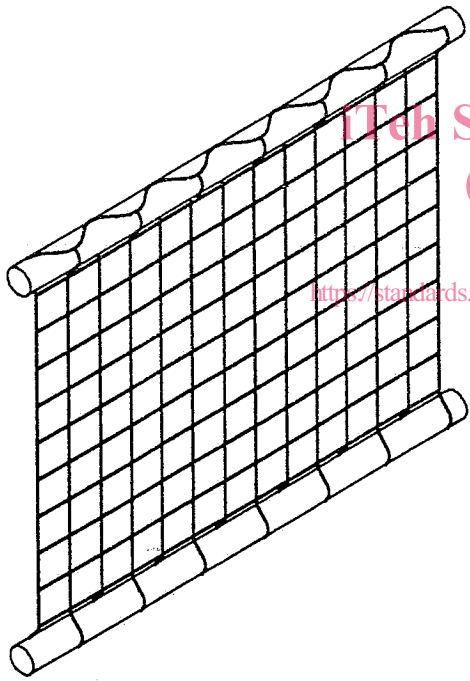


Figure 3. Safety net type U (net attached to supporting construction for vertical use)

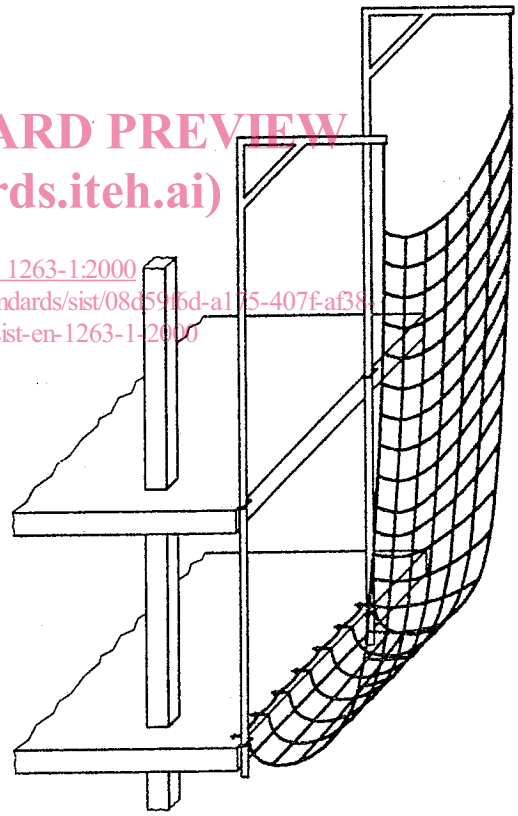
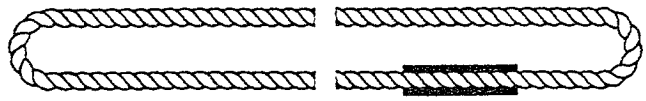
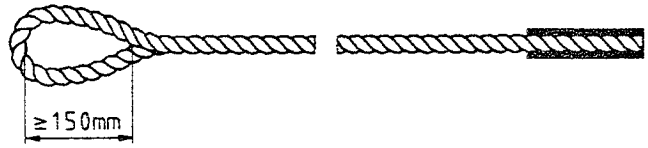


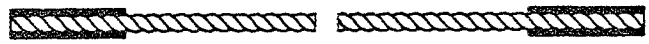
Figure 4. Safety net type V (net with border rope attached to a support type gallows)



a) Rope type K (border rope)



b) Rope type L (tie rope)



c) Rope type M (tie rope)

d) Rope type N (coupling rope)

e) Rope type O (coupling rope)

NOTE. For types L, M, N and O end of rope secured to prevent unravelling (e.g. splice).

Figure 5. Types of rope

5 Designation

5.1 Net

Designation of a net, according to EN 1263-1, type A2 with a mesh size (M) of 90 mm, with square mesh (Q) arrangement and with a net size of 10 m × 20 m:

Net EN 1263-1 – A2 – M 90 – Q – 10 × 20

- Denomination: Net
- European Standard number: EN 1263-1
- Type of net (A2), see **4.1**: A2
- Mesh size in millimetres: M 90
- Mesh configuration (Q), see figure 1a): Q
- Net size in metres: 10 × 20

5.2 Safety net

Designation of a safety net, according to EN 1263-1, type S, made of a net type A2, with a mesh size (M) of 90 mm, with a square mesh arrangement (Q) and with a net size of 10 m × 20 m:

Net EN 1263-1 – S – A2 – M90 - Q – 10 × 20

- Denomination: Net
- European Standard number: EN 1263-1
- Type of safety net (S), see **4.2**: S
- Type of net (A2) see **4.1**: A2
- Mesh size in millimetres: M90
- Mesh configuration (Q), see figure 1a): Q
- Net size in metres: 10 × 20

5.3 Rope

Designation of a rope, according to EN 1263-1, type K, with a length of 15 m:

Rope EN 1263-1 – K15.

6 Safety requirements

6.1 Tensile breaking forces

6.1.1 *Test rope*

The test rope shall have a sufficient reserve of tensile breaking force to compensate for its deterioration due to ageing factors over a one year period. The sufficient tensile breaking force by taking account of ageing shall be verified according to **7.4** or **7.5**.

6.1.2 *Border rope*

The rope (type K) shall have a minimum tensile breaking force of 30,0 kN when tested according to **7.2**.

NOTE. The value 30,0 kN includes a safety factor of 2,0.

6.1.3 *Tie rope*

The rope (type L or M) shall have a minimum tensile breaking force of 30,0 kN when tested according to **7.2**.

NOTE. The value 30,0 kN includes a safety factor of 2,0.

6.1.4 *Coupling rope*

The rope (type N or O) shall have a minimum tensile breaking force of 7,5 kN when tested according to **7.2**.

NOTE. The value 7,5 kN includes a safety factor of 2,0.

6.2 Construction

6.2.1 *Mesh size and mesh arrangement*

Nets shall be made with a square (Q) or diamond (D) mesh, see figure 6 a) and 6 b). The mesh width l_M shall not exceed 60 mm for net types A1 and B1 and 100 mm for net types A 2 and B 2, see figure 6.

6.2.2 *Safety of the ends of ropes*

The ends of all ropes used in safety nets shall be secured against unravelling, see figure 5.

6.2.3 *Loop of ropes*

The internal length of a loop shall be at least 150 mm, see figure 5.

6.2.4 *Test rope*

Safety nets shall be provided with a least one test rope (mesh rope or mesh). If a mesh rope is used as a test rope its length shall be at least 2,5 m. If meshes are used as a test rope it shall consist of at least three meshes. The test rope shall be loosely threaded through the meshes of the net and be attached in the border area. The test rope shall come from the same production run as that used for the mesh rope. In order to ensure that the test ropes can be properly identified with the mesh rope, seals with the same identity number shall be fixed at the test rope and at the mesh rope.

6.2.5 *Supporting framework*

A supporting framework shall be designed to undergo plastic deformation. The supporting framework shall be secured against unintentional movement and be designed so that individual parts cannot work loose.

6.2.6 *Fixing the net to the supporting framework*

Where no border rope is used the net shall be fixed to the supporting framework mesh by mesh.

6.3 Static strength of a net

Prior to testing to **7.7**, the deflection of the unloaded test sample shall not exceed 5 cm ± 1 cm.

The breaking energy for new nets, in kilojoules, shall be at least:

$$E_{AN} \geq E_A \times \gamma_1 \times \gamma_2$$

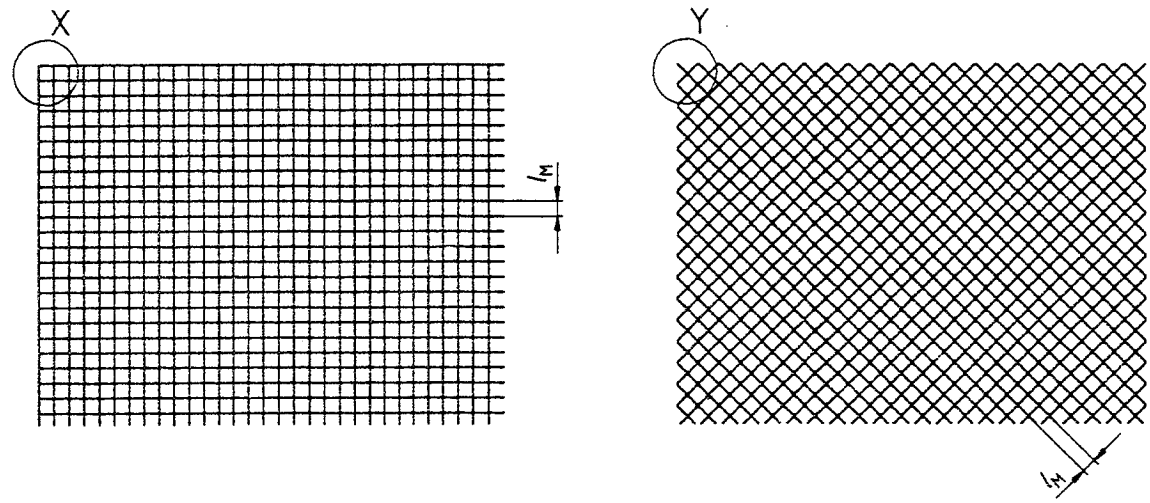
for safety nets types A1 and A2 and

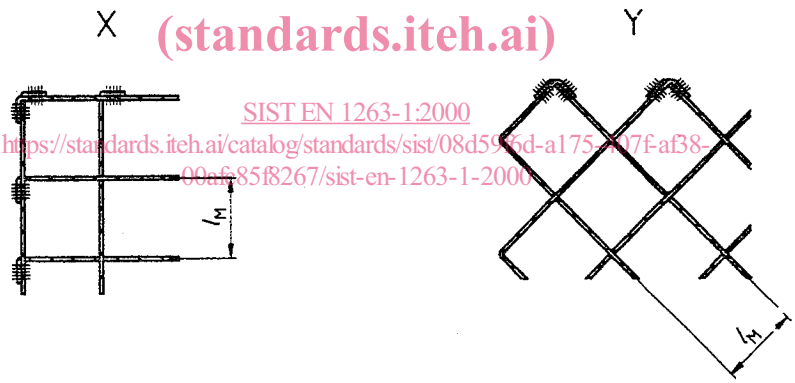
$$E_{BN} \geq E_B \times \gamma_1 \times \gamma_2$$

for safety nets types B1 and B2.

The general safety factor γ_1 shall be 1,5. The specific safety factor γ_2 for the deterioration due to ageing shall be determined according to **7.4** or **7.5**.

During testing the displacement of the test mass shall be comprised between 0,8 m and 1,5 m at the point of failure of the net.





a) Square mesh arrangement (Q)

b) Diamond mesh arrangement (D)

Figure 6. Mesh size and arrangement