



# SLOVENSKI STANDARD SIST EN 12275:2000

01-julij-2000

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## Gorniška oprema - Vponke - Varnostne zahteve in preskusne metode

Mountaineering equipment - Connectors - Safety requirements and test methods

Bergsteigerausrüstung - Karabiner - Sicherheitstechnische Anforderungen und Prüfverfahren

Equipement d'alpinisme et d'escalade - Connecteurs - Exigences de sécurité et méthodes d'essai

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Ta slovenski standard je istoveten z: <sup>SIST EN 12275:2000</sup> EN 12275:1998

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### ICS:

97.220.40	Oprema za športe na prostem in vodne športe	Outdoor and water sports equipment
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**SIST EN 12275:2000**

**en**

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ICS 97.220.40

Descriptors: sport equipment, mountaineering, connectors, definitions, safety, specifications, equipment specifications, mechanical strength, tests, information, marking

English version

## Mountaineering equipment - Connectors - Safety requirements and test methods

Équipement d'alpinisme et d'escalade - Connecteurs -  
Exigences de sécurité et méthodes d'essai

Bergsteigerausrüstung - Karabiner - Sicherheitstechnische  
Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 22 July 1998.

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. 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.

This European Standard exists 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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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 136 "Sports, playground and other recreational equipment", the secretariat of which is held by DIN.

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 February 1999, and conflicting national standards shall be withdrawn at the latest by February 1999.

The text is based on UIAA-Standard C (Union Internationale des Associations d'Alpinisme), which has been prepared with international participation.

This standard is one of a package of standards for mountaineering equipment, see annex B.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

Annexes A, B and ZA of this European Standard are for information only.

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

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## 1 Scope

This standard specifies safety requirements and test methods for connectors for use in mountaineering including climbing.

## 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 20139

Textiles – Standard atmospheres for conditioning and testing (ISO 139:1973)

## 3 Definitions

For the purposes of this standard, the following definitions apply:

**3.1 connector:** Openable device, which enables a mountaineer to link himself directly or indirectly to an anchor.

**3.2 self-closing connector:** Connector with a self-closing gate.

**3.3 basic connector (type B):** Self-closing connector with adequate strength for use anywhere in a belay system, see figure 1.

**3.4 HMS connector (type H):** Self-closing connector – generally pear shaped – intended to be used primarily for dynamic belaying, for example using an "Italian hitch" (HMS), see figure 2.

**3.5 Klettersteig connector (type K):** Self-closing connector intended to be used primarily for linking a mountaineer to a Klettersteig anchor (via ferrata) system, see figure 3.

**3.6 directional connector (type D):** Self-closing connector, or a combination of one or more self-closing connectors and slings, designed to ensure loading in a predetermined direction, see figure 4.

**3.7 specific anchor connector (type A):** Self-closing connector designed only to be linked directly to a specific type of anchor, see figure 5.

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**3.8 screwed-closure connector (Quicklink, type Q):** Connector which is closed by a screw-motion gate, which is a load bearing part of the connector when fully screwed up, see figure 6.

**3.9 oval connector (type X):** Self-closing connector designed for lower loads, which is not designed to give full protection in the event of a fall, see figure 7.

**3.10 gate:** Part of the connector which can be moved to open it. The gate can move by pivoting about a hinge (hinged gate), or by a sliding motion (sliding gate) or by a screw motion (screw-motion gate).

**3.11 self-closing gate:** Gate which moves automatically to the closed position when released from any open position, or when unlatched, if there is a gate-open latch.

**3.12 gate-locking device:** Mechanism which reduces the possibility of a closed gate being opened inadvertently. A gate-locking device can operate automatically (to the locked position) or be operated manually.

**3.13 gate-open latch:** Device which holds the gate in the fully-open position and is actuated by a deliberate manual action.

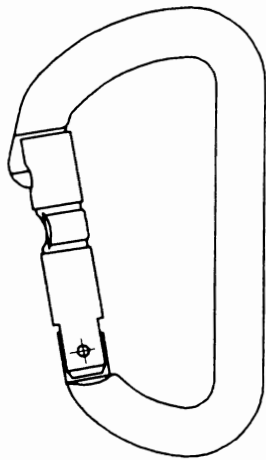


Figure 1: Example of basic connector  
(type B)

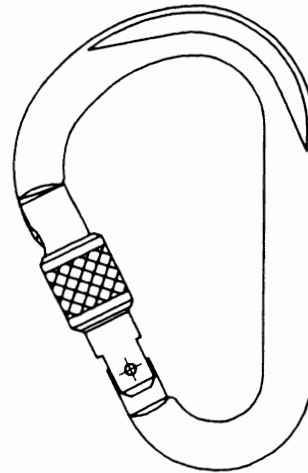


Figure 2: Example of HMS connector  
(type H)

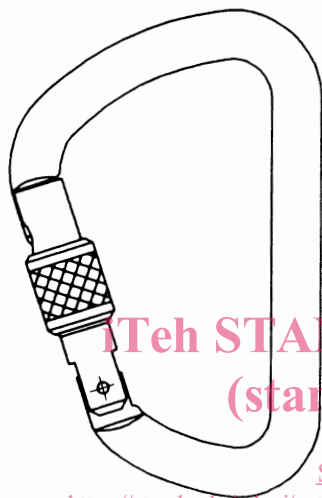


Figure 3: Example of a Klettersteig connector  
(type K)

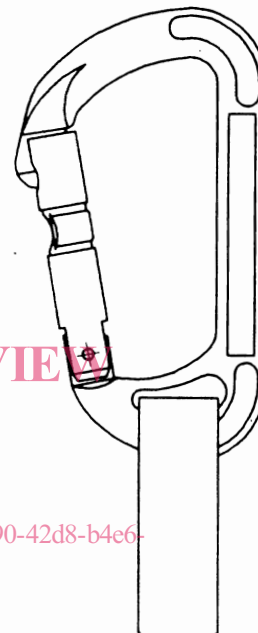


Figure 4: Example of directional connector  
(type D)

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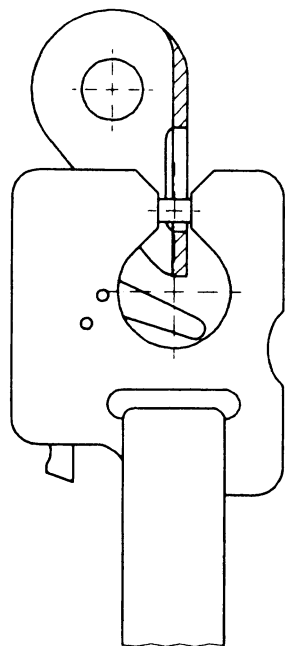


Figure 5: Example of specific anchor connector  
(type A)

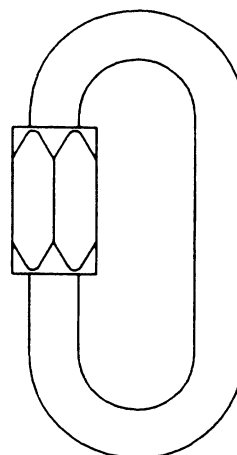
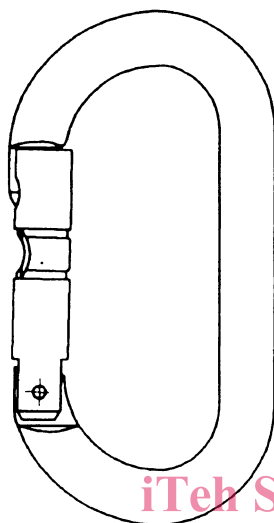


Figure 6: Example of screwed-closure connector  
(Quicklink; type Q)



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Figure 7: Example of oval connector  
(type X)

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## 4 Safety requirements

### 4.1 Design

4.1.1 All edges of a connector that can come into contact with the user's hands and/or combinable components such as ropes, slings, accessory cordes and harnesses , shall be free from burrs.

4.1.2 Connectors of type X shall be roughly symmetrical in outline about the longitudinal centre line. They shall have a minimum radius of curvature of 12 mm at the inner surface of the larger end.

4.1.3 Connectors of type H shall have a gate-locking device, but shall not have a gate-open latch.



4.1.4 Connectors of type K shall have an automatic gate-locking device.

4.1.5 Connectors of types A and D shall be so designed that the line of application of the load to the connector is uniquely defined.

4.1.6 Connectors of types B, H, D and X shall have a gate opening of at least 15 mm.

4.1.7 Connectors of type K shall have a gate opening of at least 21 mm.

4.1.8 Connectors of types B, D, H and X shall be able to accommodate in region A in accordance with figure 8 two ropes of 11 mm nominal diameter, without hindering the movement of the gate between the closed and fully open positions.

4.1.9 Connectors of type K shall be able to accommodate in region A in accordance with figure 9 a metal rod of 21 mm nominal diameter, without hindering the movement of the gate between the closed and fully open positions.

4.1.10 Connectors of type Q shall require at least four complete rotations of the screw-motion gate from the fully screwed up position to disengagement of the threads. There shall be a clearly visible indication if the gate is not in the fully screwed up position, for example by the visibility of threads or visibility of a contrasting coloured region.

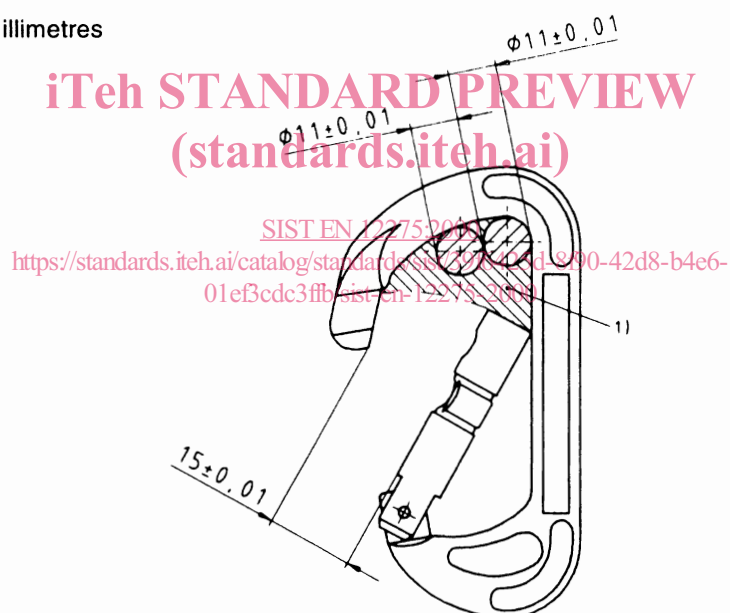
4.1.11 Any hinged gate shall only open inwards, towards the body of the connector, but the gate can open at up to 20 degrees from the plane of the connector.

4.1.12 A gate-open latch shall be designed to latch the gate open, only in its fully open position. The latch shall unlatch the gate automatically, either by attachment of the connector to an anchor, or by loading the connector.

4.1.13 A manual gate-locking device requires a deliberate manual action to lock the gate, and shall require at least two different actions to open the gate.

4.1.14 An automatic gate-locking device shall lock the gate automatically when the gate shuts, and shall require at least two different actions to open the gate.

Dimensions in millimetres



a) Region A

Figure 8: Region A for types B, D, H and X

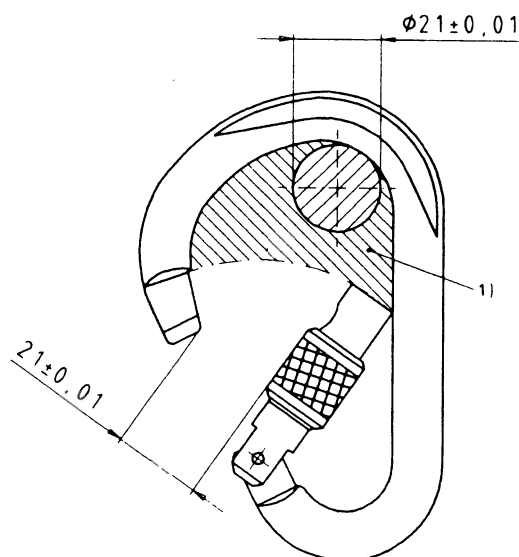


Figure 9: Region A for type K

## 4.2 Performance

### 4.2.1 Static strength

#### 4.2.1.1 Major axis with gate closed

When tested in accordance with 5.3.2.1.3, connectors, in the major axis with the gate closed, shall withstand the loads specified in table 1 without breaking. Permanent deformation which affects the operation of the connector is acceptable.

#### 4.2.1.2 Major axis with gate open

When tested in accordance with 5.3.2.1.3, connectors, in the major axis with the gate open, shall withstand the loads specified in table 1 without breaking. Permanent deformation which affects the operation of the connector is acceptable.

Table 1: Minimum static strength requirements for connectors

Type	Description	Major axis Gate closed kN	Major axis Gate open kN	Minor axis kN
B	Basic connector	20	7 *)	7
H	HMS connector	20	6 *)	7
K	Klettersteig connector	25	–	7
A	Specific anchor connector	20	7 *)	–
D	Directional connector, excluding anchor connectors	20	7 *)	–
Q	Screwed closure connector (Quicklink)	25	–	10
X	Oval connector	18	5 *)	7

\*) No requirement if fitted with an automatic gate-locking device

NOTE: In practice, if loaded with the gate open, connectors can fail at a lower load than that obtained by the method of test specified in 5.3.2.1.3. Further information on this is given in annex A.

For connectors with automatic gate-locking devices, and for screwed-closure connectors (type Q), there is no requirement for this test.

#### 4.2.1.3 Minor axis

When tested in accordance with 5.3.2.1.4, connectors, in the minor axis with the gate closed, shall withstand the loads specified in table 1 without breaking.

For connectors of types D and A, there is no requirement for this test.

### 4.2.2 Gate forces

#### 4.2.2.1 Self-closing gates

When tested in accordance with 5.3.2.2, the force required to open the gate to give a 3 mm opening, shall be greater than 5 N.

When released from any open position, or unlatched if there is a gate-open latch, the gate shall return to the fully closed position.

#### 4.2.2.2 Gate-open latches

When tested in accordance with 5.3.2.2.3.1, the minimum force required to latch the gate open shall not be less than 10 N.

When tested in accordance with 5.3.2.2.3.2 the force required to be applied to the connector to unlatch the gate shall not be greater than 15 N.

#### 4.2.2.3 Gate performance under load

For connectors of types B, D and X, not fitted with a device intended to lock the gate closed under load, when tested in accordance with 5.3.2.2.4, under a nominal major axis load of up to 800 N, it shall be possible to open the gate fully by hand, and, when released, the gate shall return to the fully closed position.

## 5 Test methods **iTeh STANDARD PREVIEW** (standards.iteh.ai)

### 5.1 Apparatus

Conventional tensile testing machine. [SIST EN 12275:2000  
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### 5.2 Preparation of test samples

For the static strength test in accordance with 5.3.2.1, condition the test samples as follows:

- a) For test samples containing a textile element, condition the textile element in accordance with EN 20139. Tests may then be done outside the conditioning room, but the temperature shall be  $(23 \pm 5)$  °C and the tests shall begin within 5 min of removal from conditioning.
- b) Test samples without a textile element shall be tested without conditioning.