BS EN 12275:2013

BSI Standards Publication

Mountaineering equipment — Connectors — Safety requirements and test methods

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National foreword

This British Standard is the UK implementation of EN 12275:2013. It supersedes BS EN 12275:1998, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee SW/136/5, Sports, Playground and other Recreational Equipment - Mountaineering Equipment.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Date	Text affected

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Mountaineering equipment - Connectors - Safety requirements and test methods

Equipement 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 9 February 2013.

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Foreword

This document (EN 12275:2013) has been prepared by Technical Committee CEN/TC 136 “Sports, playground and other recreational facilities and 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of an identical text or by endorsement, at the latest by October 2013, and conflicting national standards shall be withdrawn at the latest by October 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12275:1998.

This document 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 document.

The main changes compared to the previous edition are:

a) editorial changes were made;

b) a figure of an automatic locking Klettersteig connector was added;

c) requirements for textile components, fitted to connectors, were added;

d) gate resistance was included in the requirements;

e) gate face and gate side testing was added to the testing procedure.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The text of this European Standard is based on the former UIAA-Standard C (International Mountaineering and Climbing Federation), which has been developed with international participation.

This European Standard is one of a package of standards for mountaineering equipment, see Annex B.

1 Scope

This European Standard specifies safety requirements and test methods for connectors for use in mountaineering, climbing and related activities. They are part of the safety system, which protects the climber from a fall from height.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 565:2006, *Mountaineering equipment —Tape — Safety requirements and test methods*

EN ISO 139:2005, *Textiles — Standard atmospheres for conditioning and testing (ISO 139:2005)*

ISO 7000, *Graphical symbols for use on equipment — Registered symbols*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
connector
openable device, which enables a mountaineer to link himself directly or indirectly to an anchor or to link parts of the equipment together

3.2
self-closing connector
connector with a self-closing gate

3.3
basic connector (class B)
self-closing connector for use anywhere in a belay system

Note 1 to entry: See Figure 1.

3.4
HMS connector (class H)
self-closing connector – generally pear shaped – intended to be used primarily for dynamic belaying, for example using an "Italian hitch" (HMS)

Note 1 to entry: See Figure 2.

3.5
Klettersteig connector (class K)
self-closing connector intended to be used primarily for linking a mountaineer to a Klettersteig anchor (via ferrata) system

Note 1 to entry: See Figure 3.

3.6
termination connector (class T)
self-closing connector designed to ensure that the loading is in a predetermined direction

Note 1 to entry: See Figure 4.

3.7
specific anchor connector (class A)
self-closing connector designed only to be linked directly to a specific class of anchor

Note 1 to entry: See Figure 5.

3.8
screwed-closure connector (Quicklink; class Q)
connector which is closed by a scew-motion gate, which is a load bearing part of the connector when fully screwed up

Note 1 to entry: See Figure 6.

3.9
oval connector (class X)
self-closing connector with symmetric shape designed for e.g. aid climbing and pulleys

Note 1 to entry: See Figure 7.

3.10
gate of a connector
part of the connector which can be moved to open it

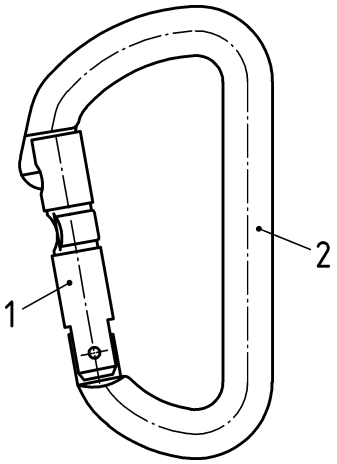
Note 1 to entry: The gate can move by pivoting about a hinge (hinged gate), or by a sliding motion (sliding gate) or by a screw motion (screw-motion gate).

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 when unloaded

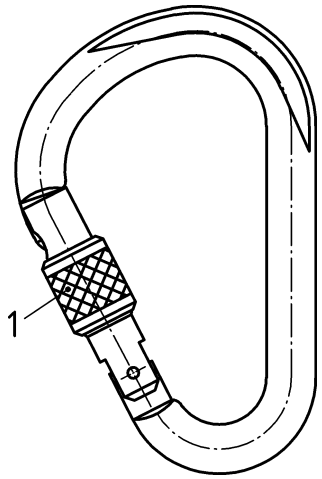
Note 1 to entry: A gate-locking device can operate automatically (to the locked position), or be operated manually.

3.13
gate-open latch
device which holds the gate in the fully-open position and is actuated by a deliberate manual action



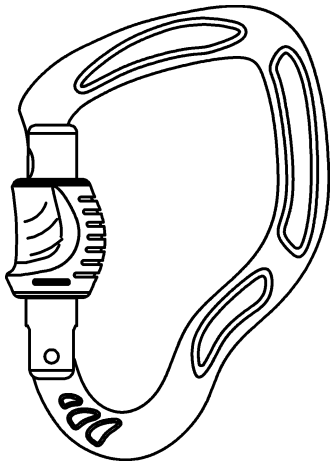
Key
1 gate
2 body

Figure 1 — Example of basic connector (class B)



Key
1 gate locking device

Figure 2 — Example of HMS connector (class H)



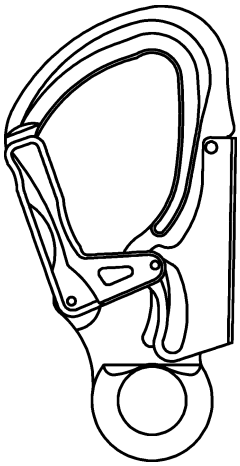


Figure 3 — Examples of a Klettersteig connector (class K)

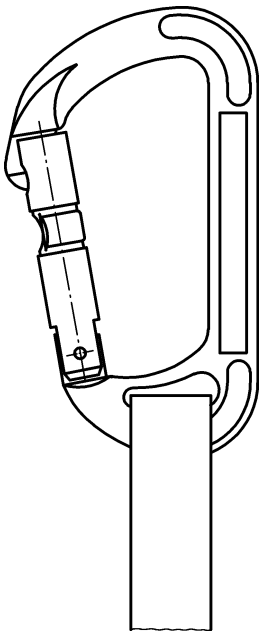
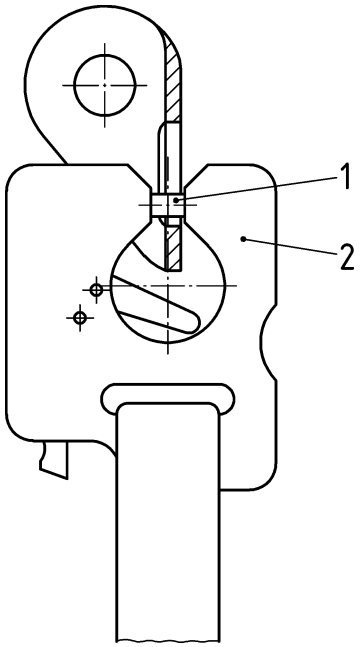


Figure 4 — Example of termination connector (class T)



Key
1 gate
2 body

Figure 5 — Example of specific anchor connector (class A)

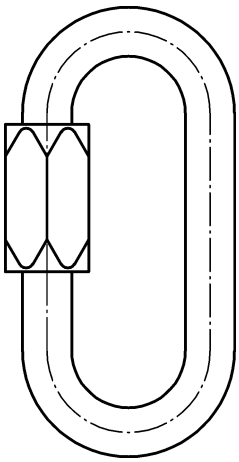


Figure 6 — Example of screwed-closure connector (Quicklink; class Q)

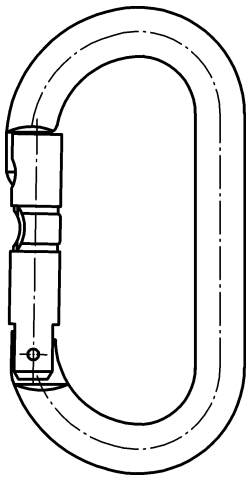


Figure 7 — Example of oval connector (class X)

4 Requirements

4.1 Design

NOTE There are no requirements concerning the dimensions or profile of that part of the connector that comes into contact with the rope under load, but see Annex A regarding this matter.

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

4.1.2 Connectors of class 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 and shall not have a gate-open latch.

4.1.3 Connectors of class H shall have a gate-locking device and shall not have a gate-open latch.

4.1.4 Connectors of class K shall have an automatic gate-locking device and shall not have a gate-open latch.

4.1.5 Connectors of class K shall have a gate opening of at least 21 mm.

4.1.6 Connectors of class K shall be able to accommodate in region A in accordance with Figure 8, a metal rod of 21 mm nominal diameter, without hindering the movement of the gate between the closed and fully open positions.

4.1.7 Connectors of classes A and T shall be so designed that the line of application of the load to the connector is uniquely defined.

4.1.8 Connectors of classes B, H, T and X shall have a gate opening of at least 15 mm.

4.1.9 Connectors of classes B, H, T and X shall be able to accommodate in region A in accordance with Figure 7, two rods of 11 mm nominal diameter, without hindering the movement of the gate between the closed and fully open positions.

4.1.10 Connectors of class 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 and shall not have a gate-open latch.

4.1.11 Any hinged gate shall only open inwards, towards the body of the connector, but it is permissible for the gate to open at up to 20° from the plane of the connector.

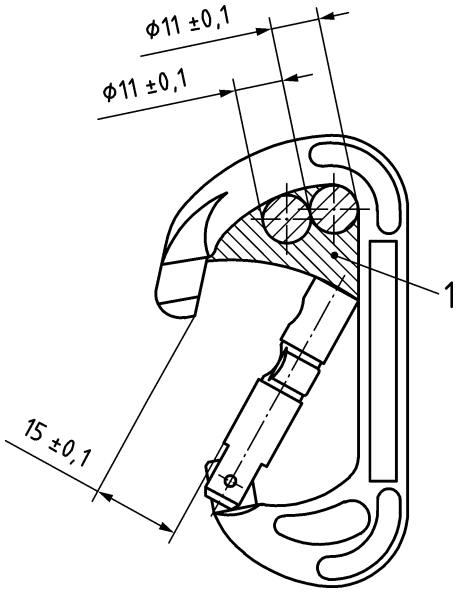
4.1.12 A gate-open latch shall be designed to latch the gate open, only in its fully open position. The latch shall unlatch the gate automatically, either by attachment of the connector to an anchor, or by loading the connector. The gate open latch can be used for all connectors, except classes H, K, X and Q.

4.1.13 A manual gate-locking device shall require 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.

4.1.15 If a tape is fitted to connectors, it shall be in accordance with the stability requirements according to EN 565:2006, 4.1.

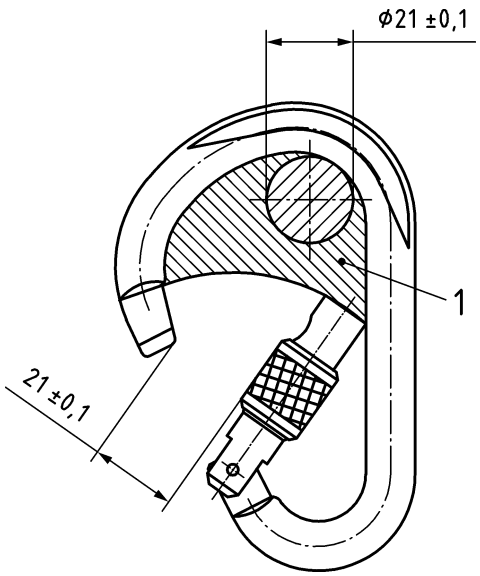
Dimensions in millimetres



Key
1 region A

Figure 8 — Region A for classes B, T, H and X

Dimensions in millimetres



Key
1 region A

Figure 9 — Region A for class 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 in the major axis with the gate closed, the breaking load shall meet the minimum requirements specified in Table 1.

4.2.1.2 Major axis with gate open

When tested in accordance with 5.3.2.1.3 in the major axis with the gate open, the breaking load shall meet the minimum requirements specified in Table 1.

Connectors with automatic gate-locking devices and screwed-closure connectors (class Q) are not required to be tested, except for class K connectors.

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.

This requirement does not apply to connectors of classes A and T.

Table 1 — Minimum static strength requirements for connectors

Class	Description	Major axis Gate closed kN	Major axis Gate open kN	Minor axis kN
B	Basic connector	20	7[a]	7
H	HMS connector	20	6[a]	7
K	Klettersteig connector	25	8	7[b]
A	Specific anchor connector	20	7[a]	—
T	Termination connector, excluding anchor connectors	20	7[a]	—
Q	Screwed closure connector (Quicklink)	25	—	10
X	Oval connector	18	5[a]	7

[a] No requirement if fitted with an automatic gate-locking device.

[b] Always required, even if the connector is also directional.

4.2.2 Gate forces

4.2.2.1 Self-closing gates

When tested in accordance with 5.3.2.2, the opening of the gate shall not exceed 3 mm.

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 classes B, T and X, if not fitted with a device intended to lock the gate closed when loaded, when tested in accordance with 5.3.2.2.4, it shall be possible to open the gate fully by hand, and, when released, the gate shall return to the fully closed position, from any open position.

4.2.3 Gate resistance (for gate locking device)

4.2.3.1 Gate face

When tested in accordance with 5.3.2.2.5, the gate-locking feature shall withstand a force of $(1 \pm 0{,}1)$ kN without separating the gate from the body of the connector by more than 1 mm and shall still function.

4.2.3.2 Gate side

When tested in accordance with 5.3.2.2.6, the gate-locking feature shall withstand a force of $(1{,}5 \pm 0{,}15)$ kN without separating the gate from the body of the connector by more than 1 mm and shall still function.

5 Test methods

5.1 Apparatus

Use a tensile testing machine with constant rate of extension (CRE).

5.2 Test samples

For each test, a new sample may be used.

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 ISO 139:2005, 3.2.1 (specific standard atmosphere). Tests may then be done outside the conditioning room, but the temperature shall be (23 ± 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.

5.3 Procedure

5.3.1 Design

5.3.1.1 General

Check that connectors, in accordance with the definitions of Clause 3, meet the requirements of 4.1.1 to 4.1.5 and 4.1.10 to 4.1.15 by visual examination and simple check measurements.

5.3.1.2 Gate opening

The subsequent tests apply to connectors of classes B, H, K, T and X.

5.3.1.2.1 For connectors of classes B, H, T and X, pass a bar of diameter (15 ± 0,1) mm through the opened gate of the connector. With the bar in region A in accordance with Figure 7, check that the gate can be opened and closed fully without making contact with the bar.

5.3.1.2.2 For connectors of class K, pass a bar of diameter (21 ± 0,1) mm through the opened gate of the connector. With the bar in region A in accordance with Figure 8, check that the gate can be opened and closed fully without making contact with the bar.

5.3.1.2.3 For connectors of classes B, H, T and X, place two bars, each of diameter (11 ± 0,1) mm, in region A in accordance with Figure 7, touching each other and the inner surface of the connector. Check that the bars can be positioned such that the gate can be opened and closed fully without making contact with either bar.

5.3.2 Performance

5.3.2.1 Static strength tests

5.3.2.1.1 Rate of loading

In the tensile tests, during loading the rate of loading shall lie within the range of:

— 50 mm to 200 mm per minute if the connector contains a textile element subject to stress during the test;

or

— 20 mm to 50 mm per minute otherwise.

5.3.2.1.2 Test measurements

Continue each test until the connector breaks or distorts to an extent that the pins are released. Measure and record the maximum applied force during the test.

5.3.2.1.3 Major axis testing

Mount the connector in a conventional tensile testing machine and apply the load by means of two pins of diameter (12 ± 0,1) mm, which are arranged to be perpendicular to the major axis. For class K connectors, apply the load to the larger end of the connector using a pin of diameter (16 ± 0,1) mm.

It is desirable that a universal joint in one arm of the testing machine is present and the pins shall be well coated with molybdenum based grease where they come into contact with a metal part of the test sample.

Apply a force equal to the weight of the connector at right angles to the direction of loading to bias the gate away from the pins initially. This is particularly important during gate-open testing.

Alternatively, the connector may be tested in a horizontal axis test machine, with the connector positioned in a vertical plane with the gate downwards without additional bias weight.

Specific anchor connectors shall be connected to an anchor, specified by the manufacturer, which shall be capable of being loaded in an appropriate direction by one of the pins, or otherwise connected to one of the jaws of the test machine. If a directional connector has a captive sling, which is intended to be loaded directly, apply the test load to the sling by a pin (10 ± 0,1) mm in diameter, with an arithmetical mean deviation of the profile of R_a = 0,8 µm and a surface roughness of R_{max} = 6,3 µm. Where a termination connector has provision for a semi-captive sling, the manufacturer shall supply a suitable short sling for the purposes of test.

When testing with the gate closed, connectors fitted with a manually operated gate-locking device shall be tested with the gate-locking device in the unlocked position.

For connectors with a gate-open latch, start the test in an open gate blocking position.

5.3.2.1.4 Minor axis testing

Carry out the minor axis test in a similar manner to 5.3.2.1.3, but the loading pins shall have a diameter of (10 ± 0,1) mm and they shall not be coated with grease. The loading direction shall be in accordance with Figure 10.

In order to avoid movement of the loading pins during the test, grooves may be made in the body, the gate and/or the gate-locking device to sufficient depth to ensure location of the pins (in accordance with Figure 10). These grooves shall not be subsequently the cause of failure. Alternatively, clamps may be used to ensure the location of the pin.

Connectors fitted with manually operated gate-locking devices shall be tested with the gate-locking device in the unlocked position.

NOTE If this is not practical, the gate locking device will be removed.

Dimensions in millimetres

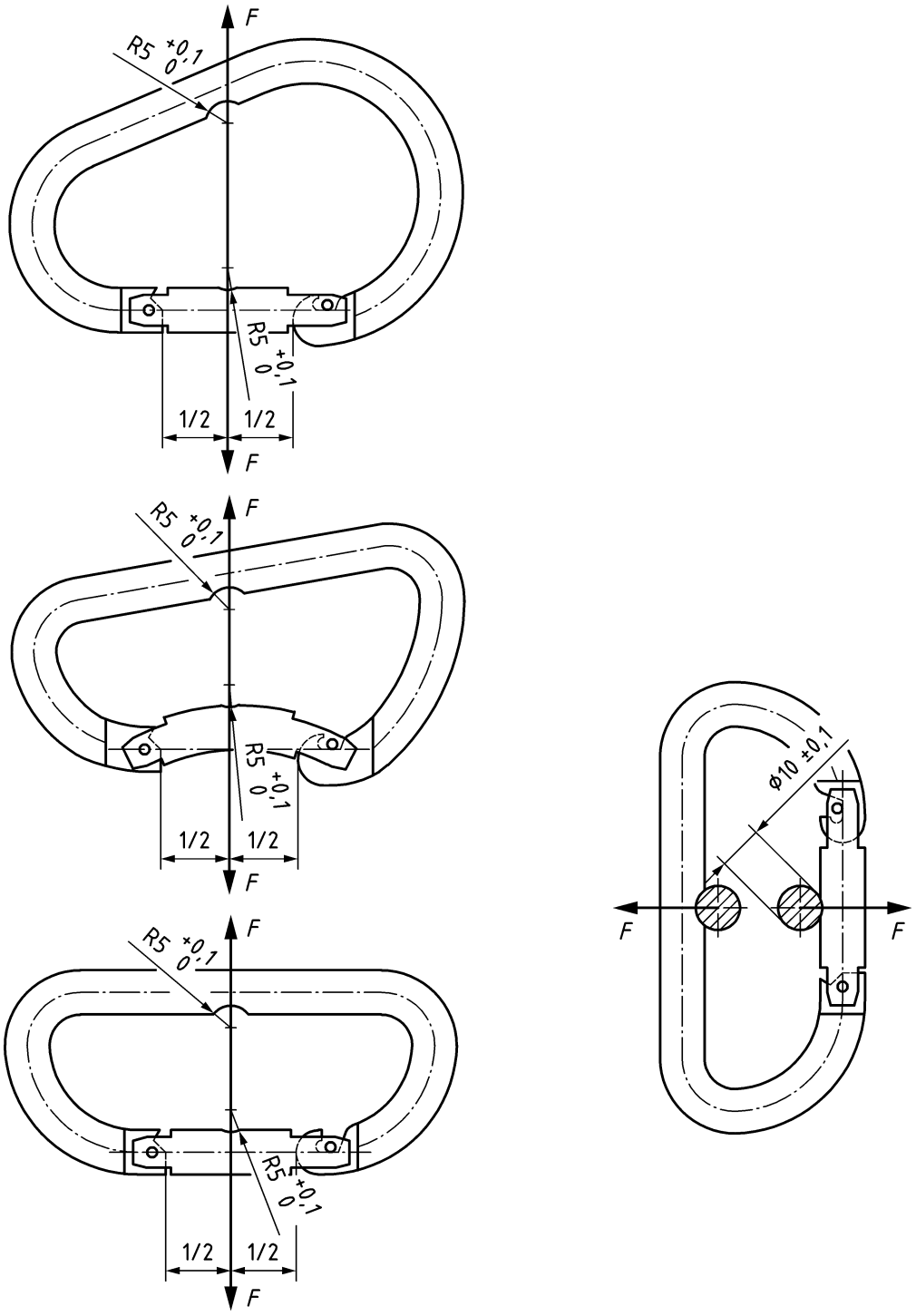


Figure 10 — Test of the minor axis

5.3.2.2 Testing of gate forces

5.3.2.2.1 Hinged gate

With the connector unloaded along the major axis, apply a force of (5 ± 0,1) N to the gate in accordance with Figure 11. The direction of the force shall be along a line at 90° to a straight line from the axis of the gate hinge to the mid-point of the latch-end of the gate, when the gate is in the closed position.

Check that the gate has not opened sufficiently for a bar of diameter (3 ± 0,1) mm to pass through the gate opening.

Check that the gate can be opened fully by hand and that the gate closes fully when released from any open position, or from a latched-open position.

Dimensions in millimetres

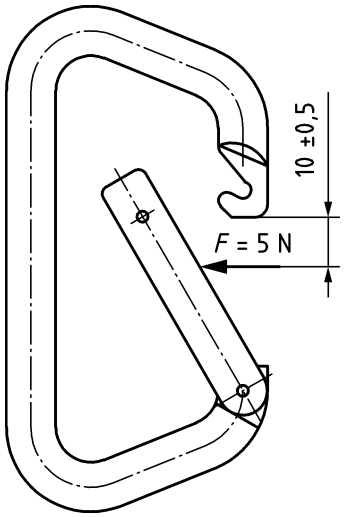


Figure 11 — Testing of the gate

5.3.2.2.2 Sliding gate

With the connector unloaded along the major axis, apply a force of (5 ± 0,1) N to the point which actuates the opening of the gate, in the direction which has maximum effectiveness.

Check that the gate has not opened sufficiently for a bar of diameter (3 ± 0,1) mm to pass through the gate opening.

Check that the gate can be opened fully by hand and that the gate closes fully when released from any open position, or from a latched-open position.

5.3.2.2.3 Gate-open latch

5.3.2.2.3.1 With the gate initially almost fully open, apply a force to the gate to latch it open. Check that the gate cannot be latched open by a force less than 10 N applied anywhere on the gate.

5.3.2.2.3.2 If the manufacturer's instructions specify that the connector unlatches from the open position to the closed position when used with a specific type of anchor, the test shall be carried out with the anchor specified. Check that the gate can be unlatched by applying a force not greater than 15 N to the connector in a direction in accordance with the manufacturer's instructions.

5.3.2.2.4 Gate performance under load

Check with the connector in the tensile testing machine and with an applied major axis load (800 ± 10) N, that the gate opens without undue resistance e.g. by hand and closes normally without external force.

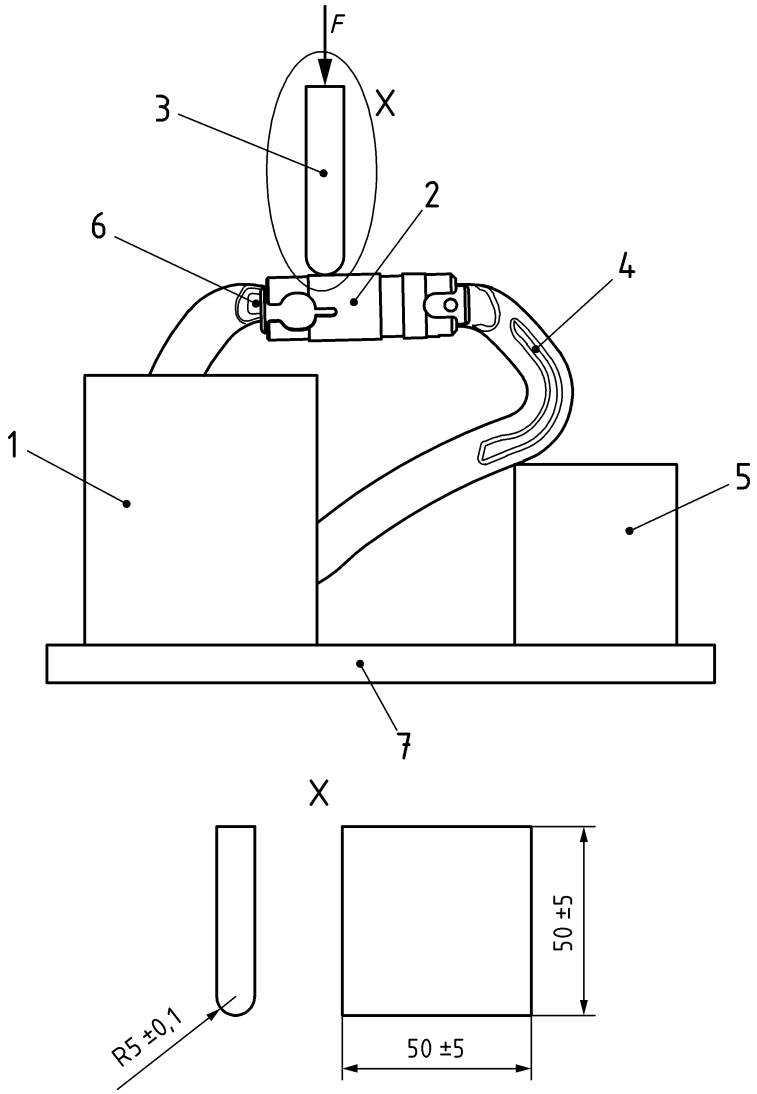
5.3.2.2.5 Gate face testing (for gate locking devices)

Each test shall be carried out on a new sample.

Insert the connector into a fixture with the gate uppermost, so that the specified force is applied perpendicularly to the direction in which the gate opens. By means of a rigid bar (see Figure 12), apply the specified force for (60 ± 1) s to the gate at a point as close to the nose as possible. The rate of loading shall be within the range of 50 N/s to 150 N/s. With the force still applied, check for and measure any gap between the gate and the body and record it.

An alternative for the resting block may be to use, for example a round bar through the eye.

Dimensions in millimetres

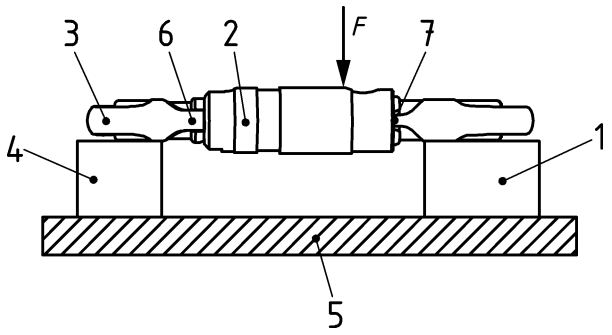


Key
1 fixture
2 gate
3 load (rigid bar)
4 connector
5 resting block (alternatively a round bar for an eye)
6 nose
7 test bed
F force

Figure 12 — Example of a gate face resistance test

5.3.2.2.6 Gate side testing (for gate locking devices)

Insert the connector, with the gate locked, into a fixture such that the plane in which the gate opens is horizontal, and a force can be applied vertically to the gate as shown in Figure 13. The fixture shall be as close as possible to the ends of the gate without inhibiting the function of the gate. By means of a rigid bar (not shown in Figure 13, see Figure 12), apply the specified force for (60 ± 1) s to the gate at a point as close to the nose as possible. The rate of loading shall be 50 N/s to 150 N/s.



Key
1 fixture
2 gate
3 connector
4 resting block
5 test bed
6 hinge
7 nose
F force

Figure 13 — Gate side-load resistance test

6 Marking

Connectors shall be marked clearly, indelibly and durably with at least the following information:

a) name of the manufacturer or his authorised representative [1];

b) connector class letter in accordance with Clause 3 surrounded by a circle, for class H, class K and class X connectors; classes B and T connectors shall not be marked with B or T surrounded by a circle unless they are fitted with a gate-locking device.

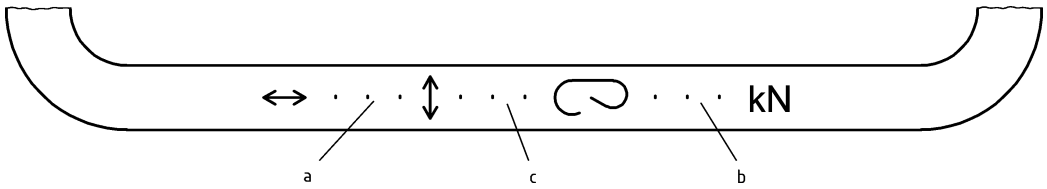
c) minimum strength values in kN to the nearest whole number below the value guaranteed by the manufacturer, for the following modes of loading (where there is a test requirement):

— major axis gate-closed;

— major axis gate-open;

— minor axis.

The markings shall take the form in accordance with Figure 14 together with the marking "kN" either at the beginning or at the end. The marked strength shall be a whole number of kN.



Key
a major axis strength – gate closed
b major axis strength – gate open
c minor axis strength

Figure 14 — Example of marking

d) year of manufacturing when the connector has permanently attached load bearing textile parts;

e) graphical symbol, which advises the user to read the information given by the manufacturer (see Figure 15).

Figure 15 — Graphical symbol (according to ISO 7000, Symbol No. 1641)

7 Information supplied by the manufacturer

The information shall contain at least the following:

a) name and address of the manufacturer or his authorised representative [1];

b) reference number of this European Standard: EN 12275;

c) the meaning of any markings on the product;

d) the use of the product;

e) if the connector cannot be opened when under load;

f) how to choose other components for use in the system;

g) how to maintain and service the product;

h) the lifespan of the product or how to assess it;

i) the effects of chemical reagents and temperature on the product;

j) the effects of storage and ageing.

Annex A
(informative)

Connector cross-sectional profile and thickness

If a connector is too thin, and/or the radius of curvature too small, in the region in contact with the rope when loaded, it will lead to increased wear of the rope during use. Experience has shown that a connector, having a cross-sectional profile with the minimum dimensions as shown in the figure below, will not cause excessive wear to the rope. However, it is difficult to specify the region in which these minimum dimensions are required. Furthermore, it is very difficult to measure the radius of curvature in a small area, taking into account the surface irregularities that will arise due to the method of manufacture. Hence it is not considered practicable to specify such minimum profile dimensions in the standard; nor is it considered practicable to expect a test laboratory to reliably accept/reject a connector on the basis of these minimum dimensions.

Nevertheless, at the design stage, manufacturers are advised to take into consideration the minimum profile dimensions given in Figure A.1, for the region in contact with the rope under load.

Dimensions in millimetres

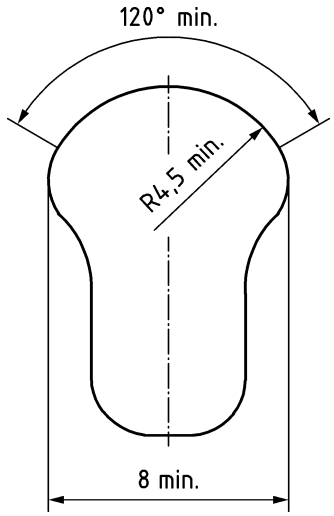


Figure A.1 — Connector cross sectional profile

Annex B
(informative)

Standards on mountaineering equipment

Table B.1 — List of standards on mountaineering equipment

No	Document	Title
1	EN 564	Mountaineering equipment — Accessory cord — Safety requirements and test methods
2	EN 565	Mountaineering equipment — Tape — Safety requirements and test methods
3	EN 566	Mountaineering equipment — Slings — Safety requirements and test methods
4	EN 567	Mountaineering equipment — Rope clamps — Safety requirements and test methods
5	EN 568	Mountaineering equipment — Ice anchors — Safety requirements and test methods
6	EN 569	Mountaineering equipment — Pitons — Safety requirements and test methods
7	EN 892	Mountaineering equipment — Dynamic mountaineering ropes — Safety requirements and test methods
8	EN 893	Mountaineering equipment — Crampons — Safety requirements and test methods
9	EN 958	Mountaineering equipment — Energy absorbing systems for use in klettersteig (via ferrata) climbing – Safety requirements and test methods
10	EN 959	Mountaineering equipment — Rock anchors — Safety requirements and test methods
11	EN 12270	Mountaineering equipment — Chocks — Safety requirements and test methods
12	EN 12275	Mountaineering equipment — Connectors — Safety requirements and test methods
13	EN 12276	Mountaineering equipment — Frictional anchors — Safety requirements and test methods
14	EN 12277	Mountaineering equipment — Harnesses — Safety requirements and test methods
15	EN 12278	Mountaineering equipment — Pulleys — Safety requirements and test methods
16	EN 12492	Mountaineering equipment — Helmets for mountaineers — Safety requirements and test methods
17	EN 13089	Mountaineering equipment — Ice-tools — Safety requirements and test methods
18	EN 15151-1	Mountaineering equipment — Braking devices — Part 1: Braking devices with manually assisted locking, safety requirements and test methods
19	EN 15151-2	Mountaineering equipment — Braking devices — Part 2: Manual braking devices, safety requirements and test methods

Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 89/686/EEC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 89/686/EEC on the approximation of the laws of the member states relating to personal protective equipment.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the 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 Requirements of that Directive and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Directive 89/686/EEC

Clause(s)/sub-clause(s) of this EN	Essential Requirements (ERs) of Directive 89/686/EEC		Qualifying remarks/Notes
4.2.2	1.1.1	Ergonomics	
4.1.1	1.2.1.2	Satisfactory surface condition of all PPE parts in contact with the user.	
4.2.1, 4.2.3	1.3.2	Lightness and design strength	
6	2.12	PPE bearing identification or recognition marks directly or indirectly related to health and safety	
6, 7	1.4	Information supplied by the manufacturer	
4, 7	3.1.2.2	Prevention of falls from a height	Connectors according to this standard are only one part of the safety chain and should be used in conjunction with other compatible equipment.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

Bibliography

[1] Regulation 765/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93

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