

# Mountaineering equipment — Pitons — Safety requirements and test methods

The European Standard EN 569:2007 has the status of a  
British Standard

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## National foreword

This British Standard is the UK implementation of EN 569:2007. It supersedes BS EN 569:1997 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee SW/136, Sports, playground and other recreational equipment, to Subcommittee SW/136/5, Mountaineering equipment.

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

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

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Bergsteigerausrüstung - Felshaken - Sicherheitstechnische Anforderungen und Prüfverfahren

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## Foreword

This document (EN 569:2007) has been prepared by the 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of an identical text or by endorsement, at the latest by August 2007, and conflicting national standards shall be withdrawn at the latest by August 2007.

This document supersedes EN 569:1997.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to support Essential Requirements of EU Directive 89/686/EEC.

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

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

## **Introduction**

The text of this European Standard is based on the former UIAA-Standard R (Union Internationale des Associations d'Alpinisme), which has been developed with international participation.

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

## 1 Scope

This European Standard specifies safety requirements and test methods for pitons for use in mountaineering including climbing.

## 2 Terms and definitions

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

### 2.1

#### **piton**

device which, when inserted into a rock crack by means of a hammer or equivalent device, provides an anchor

NOTE Two parts can normally be identified in the piton: the head and the blade.

### 2.2

#### **head**

part of the piton which contains the attachment point eye (or eyes) used for connection to the rope (via a connector) and which is usually the part struck when inserting the piton

### 2.3

#### **blade**

part of the piton which is inserted into the rock crack

### 2.4

#### **length of the piton**

length of the blade measured in the direction of its insertion into the crack

### 2.5

#### **pulling shackle**

tool used to apply the force in the test

### 2.6

#### **safety piton**

piton which exhibits a high breaking force (see Table 1) and having a length of at least 90 mm

### 2.7

#### **progression piton**

piton with a lower breaking force than safety pitons (see Table 1)

## 3 Safety requirements

### 3.1 Design

3.1.1 The eye shall be at least 3 mm thick (see Figure 1).

3.1.2 The internal edges of the eye shall be rounded with a radius larger than 0,2 mm or larger than 0,2 mm × 45°. See a) in Figure 1.

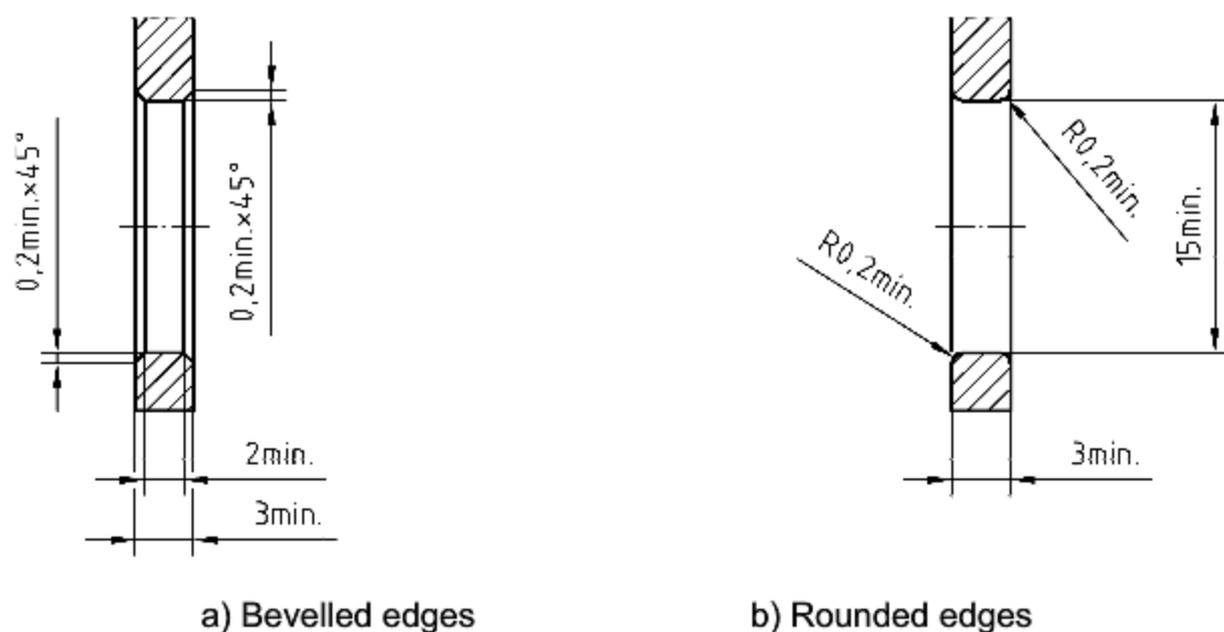


Figure 1 — Attachment point eye dimensions

3.1.3 When tested according to 4.1, the eye shall have an internal diameter of at least 15 mm. See b) in Figure 1.

3.1.4 If pitons are made from heat treated steel with a hardness greater than 38 HRC they have to appear dark. Pitons which are made from all other materials and a hardness less than 22 HRC have to appear light. The head and the eye shall be free from burrs and sharp edges.

3.2 Breaking force

When tested in accordance with 4.2, the breaking force shall be not less than the appropriate value given in Table 1.

Table 1 — Minimum values of breaking force

Type	Breaking force		
	$F_1$	$F_2$	$F_3$
	kN	kN	kN
Safety pitons	25	10	15
Progression pitons	12,5	5	7,5

$F_1$  is the normal direction specified by the manufacturer;  
 $F_2$  is the reverse direction;  
 $F_3$  is the sideways direction  
 (see Figures 2 and 3).

4 Test method

4.1 Examination of design

The requirements according to 3.1 shall be tested by measurement or tactile examination on one test sample.

## 4.2 Determination of breaking force

### 4.2.1 Test samples

If a piton model is produced in different lengths, test only the shortest length in accordance with 4.2.5. For each test direction a new test sample is to be used.

### 4.2.2 Test conditions

Carry out the test at a temperature of  $(23 \pm 5) ^\circ\text{C}$ .

### 4.2.3 Apparatus

The apparatus shall consist of

- a vice for holding the piton at a pressure that does not lead to visible deformation of the test sample and with edges of the two jaws holding the piton rounded to a radius of  $(5 \pm 0,5)$  mm (see Figure 2). At least one of the jaws rotates in order to accommodate any tapered shape in the piton;
- a means of preventing extraction and rotation of the piton, e.g. one or two pins. Ensure that the outer hole drilled in the piton blade respectively the fixing system remains at least 20 mm from the outer surface of the jaw (see Figure 2);
- a pulling shackle, made of steel, with a diameter of  $(10 \pm 0,1)$  mm to apply a force on the piton, the part of this device which is nearest to the piton being as indicated in Figures 2 and 3. The shackle rotates freely around axes X and Y (see Figure 3), to allow free deformation of the piton.

Dimensions in millimetres

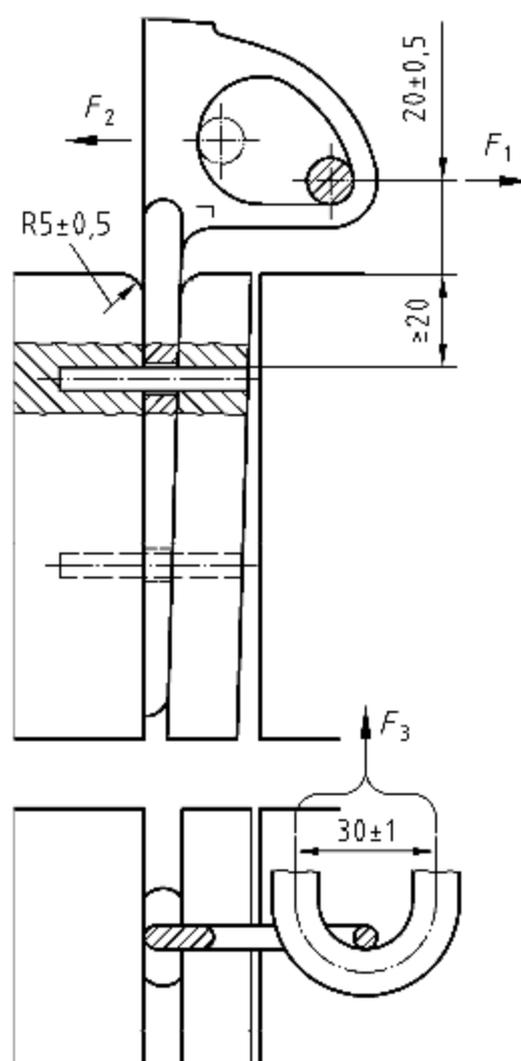


Figure 2 — Part of the test device (Example 1)

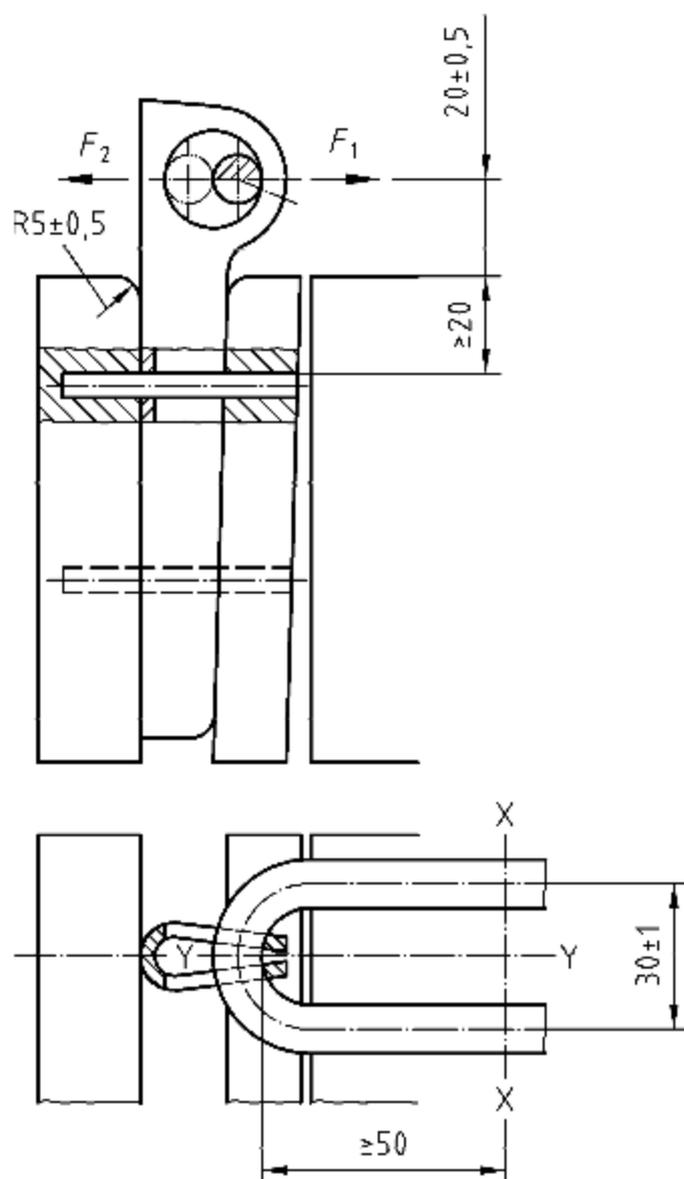


Figure 3 — Part of the test device (Example 2)

#### 4.2.4 Preparation and positioning of test samples

If necessary, drill holes in the piton and jaw of the vice to accommodate the holding pins.

If this method of fixing is not feasible, use other means as advised by the manufacturer.

NOTE The manufacturer can provide means to prevent rotation during side pull, particularly in cases where only one pin can be used.

Ensure that the holding system does not cause rupture of the piton.

For positioning apply a force of  $(100 \pm 10)$  N to the pulling device in " $F_1$ " direction with an initial distance of the line of action of the pulling force from the jaw surface of  $(20 \pm 0,5)$  mm (see Figure 2). If this cannot be achieved, use the smallest possible distance. Use the same distance for each direction of force.

#### 4.2.5 Procedure

Apply a force with a traction speed of  $(35 \pm 15)$  mm/min in the three following directions:

- normal direction ( $F_1$ ), specified by the manufacturer;
- reverse direction ( $F_2$ );
- sideways direction ( $F_3$ ).

If the piton is asymmetric, repeat the side pull in the opposing direction on an unloaded test sample.

If the test sample does not break when a force of 30 kN has been reached, terminate the test and report a value of 30 kN.

## 5 Marking

The head of each piton shall be marked with at least the following information:

- a) name of the manufacturer or its representative in the European Community;
- b) piton length, expressed in centimetres rounded down to the nearest whole centimetre.

Safety pitons shall be marked with the letter "S" in a circle.

If there is insufficient space on the head, the name or trademark of the manufacturer may be affixed to the piton blade.

## 6 Information supplied by the manufacturer

The piton shall be supplied with an explanatory leaflet, and written in at least the official language(s) of the state of destination within the European Community containing at least the following items;

- a) name and address of the manufacturer or its representative in the European Community;
- b) number of this European Standard, i.e. EN 569;
- c) meaning of any markings on the product;
- d) explanation of the indication of length;
- e) explanation of the symbol "S";
- f) information that the breaking force and the holding capacity of a piton placed in a rock will be reduced as time passes and that multiple use of a piton may also reduce its strength;
- g) use of the product;
- h) how to choose other components for use in the system;
- i) how to maintain and service the product;
- j) lifespan of the product;
- k) effects of chemical reagents and temperature on the product.

## Annex A (informative)

### Standards on mountaineering equipment

**Table A.1 — List of standards on mountaineering equipment**

No	Document	Title
1	EN 892	Mountaineering equipment — Dynamic mountaineering ropes — Safety requirements and test methods
2	EN 12275	Mountaineering equipment — Connectors — Safety requirements and test methods
3	EN 13089	Mountaineering equipment — Ice-tools — Safety requirements and test methods
4	EN 12277	Mountaineering equipment — Harnesses — Safety requirements and test methods
5	EN 12492	Mountaineering equipment — Helmets for mountaineers — Safety requirements and test methods
6	EN 564	Mountaineering equipment — Accessory cord — Safety requirements and test methods
7	EN 565	Mountaineering equipment — Tape — Safety requirements and test methods
8	EN 566	Mountaineering equipment — Slings — Safety requirements and test methods
9	EN 12276	Mountaineering equipment — Frictional anchors — Safety requirements and test methods
10	EN 12270	Mountaineering equipment — Chocks — Safety requirements and test methods
11	EN 567	Mountaineering equipment — Rope clamps — Safety requirements and test methods
12	EN 958	Mountaineering equipment — Energy absorbing systems for use in klettersteig (via ferrata) climbing — Safety requirements and test methods
13	EN 959	Mountaineering equipment — Rock anchors — Safety requirements and test methods
14	EN 568	Mountaineering equipment — Ice anchors — Safety requirements and test methods
15	EN 569	Mountaineering equipment — Pitons — Safety requirements and test methods
16	EN 893	Mountaineering equipment — Crampons — Safety requirements and test methods
17	prEN 15151	Mountaineering equipment — Descenders — Safety requirements and test methods
18	EN 12278	Mountaineering equipment — Pulleys — 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 Communities 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)/subclause(s) of this EN	Essential Requirements (ERs) of Directive 89/686/EEC	Qualifying remarks/Notes
3.1	1.2.1 Absence of risk and other factors	
3.2	1.3.2 Lightness and design strength	
6	1.4 Information supplied by the manufacturer	

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

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