SLOVENSKI STANDARD
SIST EN 12276:2013

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Gorniška oprema - Torna sidra (metulji) - Varnostne zahteve in preskusne metode

Mountaineering equipment - Frictional anchors - Safety requirements and test methods

Bergsteigerausrüstung - Klemmgeräte - Sicherheitstechnische Anforderungen und Prüfverfahren

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

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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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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12276

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ICS 97.220.40

Supersedes EN 12276:1998

English Version

Mountaineering equipment - Frictional anchors - Safety requirements and test methods

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

Bergsteigerausrüstung - Klemmgeräte - Sicherheitstechnische Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 28 September 2013.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 12276:2013) 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of an identical text or by endorsement, at the latest by May 2014, and conflicting national standards shall be withdrawn at the latest by May 2014.

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 12276:1998.

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.

In relation to EN 12276:1998 the following main amendments have been made:

a) the passive strength has been added;

b) addition of test procedure for testing holding force and passive strength;

c) addition of pictograms for holding force and passive strength for the marking;

d) addition of a pictogram for reading the manufacturers information.

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, 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.

1 Scope

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

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, *Mountaineering equipment - Tape - Safety requirements and test methods*

EN ISO 139, *Textiles - Standard atmospheres for conditioning and testing (ISO 139)*

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
frictional anchor
device, capable of self-expansion, which can be placed in a parallel-sided crack in the rock, and which, due to friction between the device and the rock, can withstand a load

Note 1 to entry: See Annex A for protection provided by frictional anchors.

3.2
means of attachment
part of the frictional anchor which allows the attachment of a connector

Note 1 to entry: Applies to connectors in accordance with EN 12275.

3.3
holding force
force necessary to cause the frictional anchor, or its means of attachment, to break or to be pulled through the test apparatus and determined in the strength test in accordance with 5.4.2.2

3.4
passive strength
force necessary to cause the frictional anchor, or its means of attachment, to break or to be pulled through the test apparatus and determined in the strength test in accordance with 5.4.2.3

3.5
operational range
range of the widths within which the manufacturer ensures the holding force will be at least the minimum holding force marked on the frictional anchor

4 Requirements

4.1 Design

4.1.1 Frictional anchors shall be fitted with a means of attachment to a connector. If the means of attachment is sewn, the stitching shall contrast in colour or surface appearance. If the mean of attachment is a tape, it shall comply with stability requirements of EN 565.

4.1.2 The means of attachment shall be large enough to accommodate a pin with a diameter of 15 mm.

4.1.3 All edges of the frictional anchor and the means of attachment that may come into contact with fingers or combinable components shall be free from burrs.

4.2 Strength

4.2.1 Holding force

When tested in accordance with 5.4.2.2, the holding force shall be at least the one marked on the frictional anchor and not be less than 5,0 kN.

4.2.2 Passive strength (if claimed)

When tested in accordance with 5.4.2.3, the passive strength shall be at least the one marked on the frictional anchor and not be less than 5,0 kN.

5 Test methods

5.1 Test samples

At least two frictional anchors shall be provided for testing; at least three friction anchors, if passive strength is claimed. If a frictional anchor is manufactured in different sizes, each size shall be tested.

5.2 Apparatus for strength test

5.2.1 Layout

The apparatus consists of two parallel, rigid steel supporting jaws for the adjustable parts of the frictional anchor and of a loading bar with a diameter of (10 ± 0,1) mm for the means of attachment; see Figure 2.

The static friction between the supporting jaws and the frictional anchor shall be great enough to prevent the frictional anchor from slipping through at the test load, but the maximal surface roughness of R_{max} shall not exceed 500 µm.

The surface of the loading bar shall have an arithmetical mean deviation of the profile of R_a = 0,8 µm and a maximal surface roughness of R_{max} = 6,3 µm.

There are no surface roughness requirements for the loading bar when the means of attachment is other than textile material.

5.2.2 Adjustment

The distance *s* between the supporting jaws shall be according to the following formulae:

Position 1: $s_1 = b_{min} + [(b_{max} - b_{min})/4]$ (1)

Position 2: $s_2 = b_{min} + [(b_{max} - b_{min})^3/_4]$ (2)

where

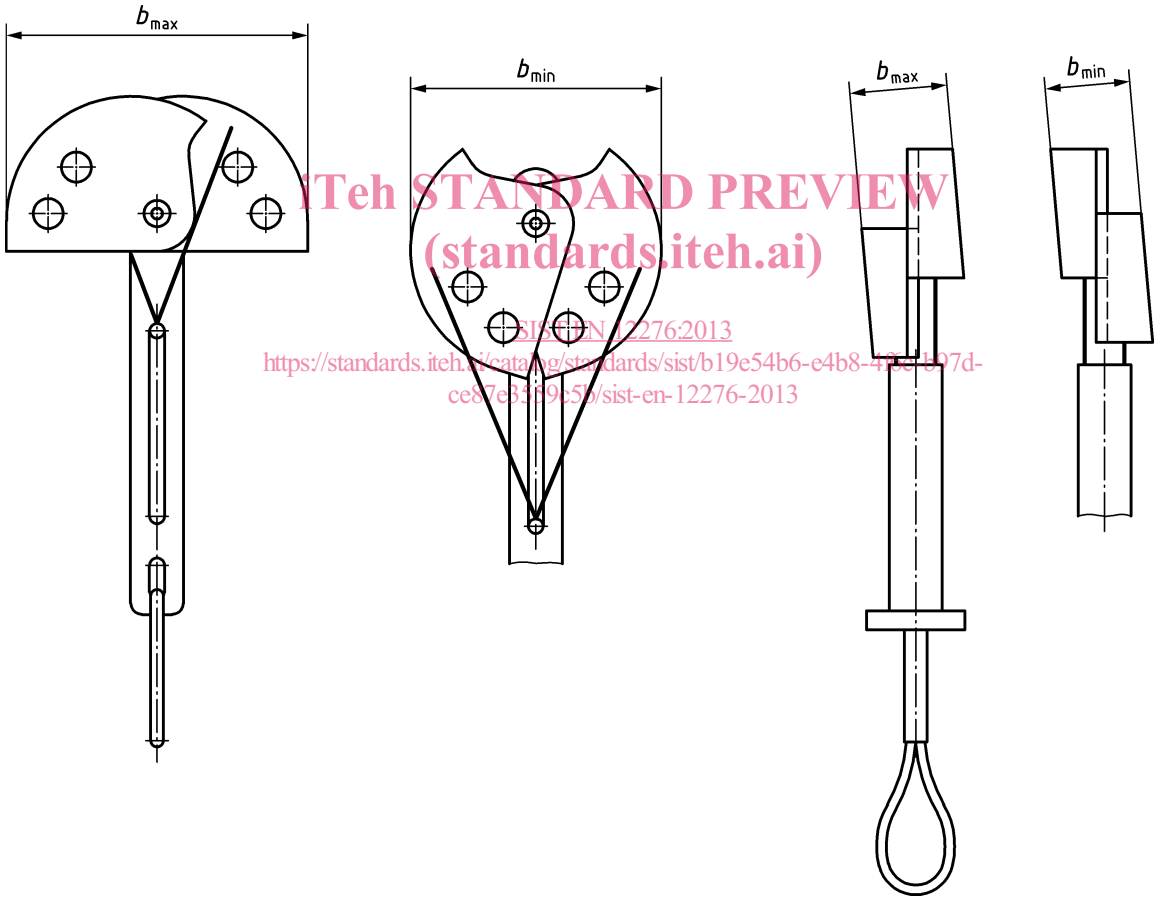
b_{min} is the minimum adjustable width, see Figure 1;

b_{max} is the maximum adjustable width, see Figure 1.

If the range between b_{max} and b_{min} is less than 5 mm, only one position according to the following formula shall be adjusted:

Position 3: $s_3 = b_{min} + [(b_{max} - b_{min})/2]$ (3)

Position 3 is also used for passive strength test for all frictional anchors, if claimed.



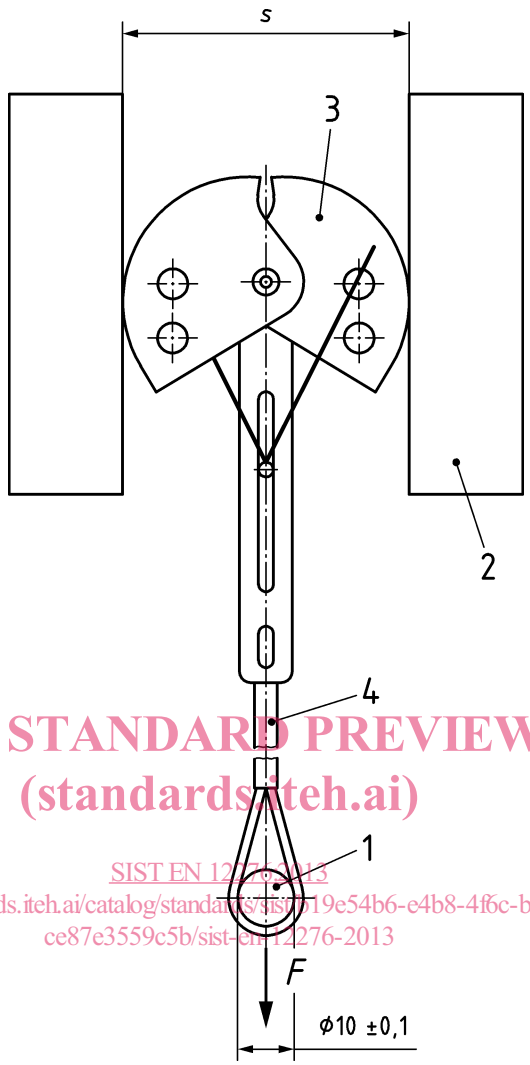
Key

b_{min} minimum adjustable width

b_{max} maximum adjustable width

Figure 1 — Example of frictional anchors

Dimensions in millimetres



Key

1	loading bar
2	supporting jaws
3	frictional anchor
4	means of attachment
s	distance between supporting jaws
F	applied Force

Figure 2 — Layout and adjustment of apparatus — test of holding force

5.3 Conditioning and test conditions

For the strength test according to 5.4.2, condition frictional anchors with textile means of attachment in accordance with EN ISO 139.

Carry out the strength test at a temperature of (23 ± 5) °C.