BRITISH STANDARD

BS EN
12276:1999

Mountaineering equipment — Frictional anchors — Safety requirements and test methods

The European Standard EN 12276:1998 has the status of a British Standard

ICS 97.220.40

National foreword

This British Standard is the English language version of EN 12276:1998.

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, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

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

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 7 and a back cover.

This British Standard, having been prepared under the direction of the Consumer Products and Services Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 February 1999

ISBN 0 580 30394 2

Amendments issued since publication

Amd. No.	Date	Text affected

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12276

September 1998

ICS 97.220.40

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

English version

Mountaineering equipment — Frictional anchors — Safety requirements and test methods

Equipement 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 7 August 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.

CEN

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

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

Ref. No. EN 12276:1998 E

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

The text is based on UIAA-Standard L (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 A.

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 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.

Contents

1 Scope

This standard specifies safety requirements and test methods for frictional anchors 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.

prEN 12275, *Mountaineering equipment — Connectors — Safety requirements and test methods.*

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

frictional anchor

adjustable wedge-shaped body, which is intended to be wedged in cracks in the rock and is able to withstand a load in the direction of the longitudinal axis of the means of attachment.

3.2

means of attachment

any system which allows the attachment of a connector (in accordance with prEN 12275).

3.3

holding force

force necessary to cause the frictional anchor to break or slip through the test apparatus, as determined in the strength test in accordance with **5.4.2**.

4 Safety 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 with the background in colour or surface appearance.

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

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

4.2 Strength

When tested in accordance with **5.4.2**, the holding force shall be at least 5,0 kN.

5 Test methods

5.1 Test samples

At least two frictional anchors shall be provided for the test. 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 $(10 \pm 0{,}1)$ 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 formula:

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

Position 2: $s = b_{min} + [(b_{max} - b_{min})3/4]$

where

b_{min} is the minimum adjustable width

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:

$s = b_{min} + [(b_{max} - b_{min})/2]$

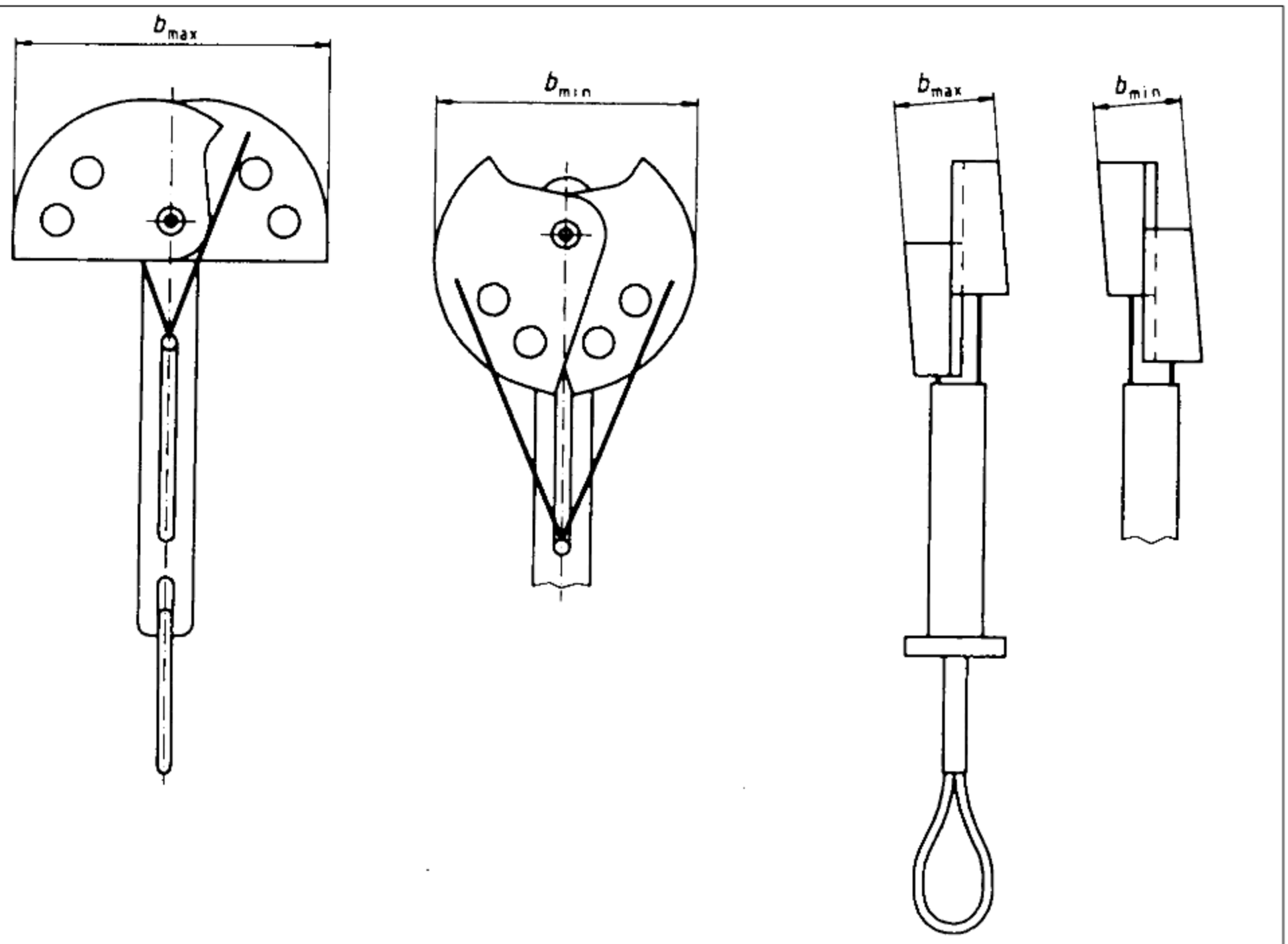
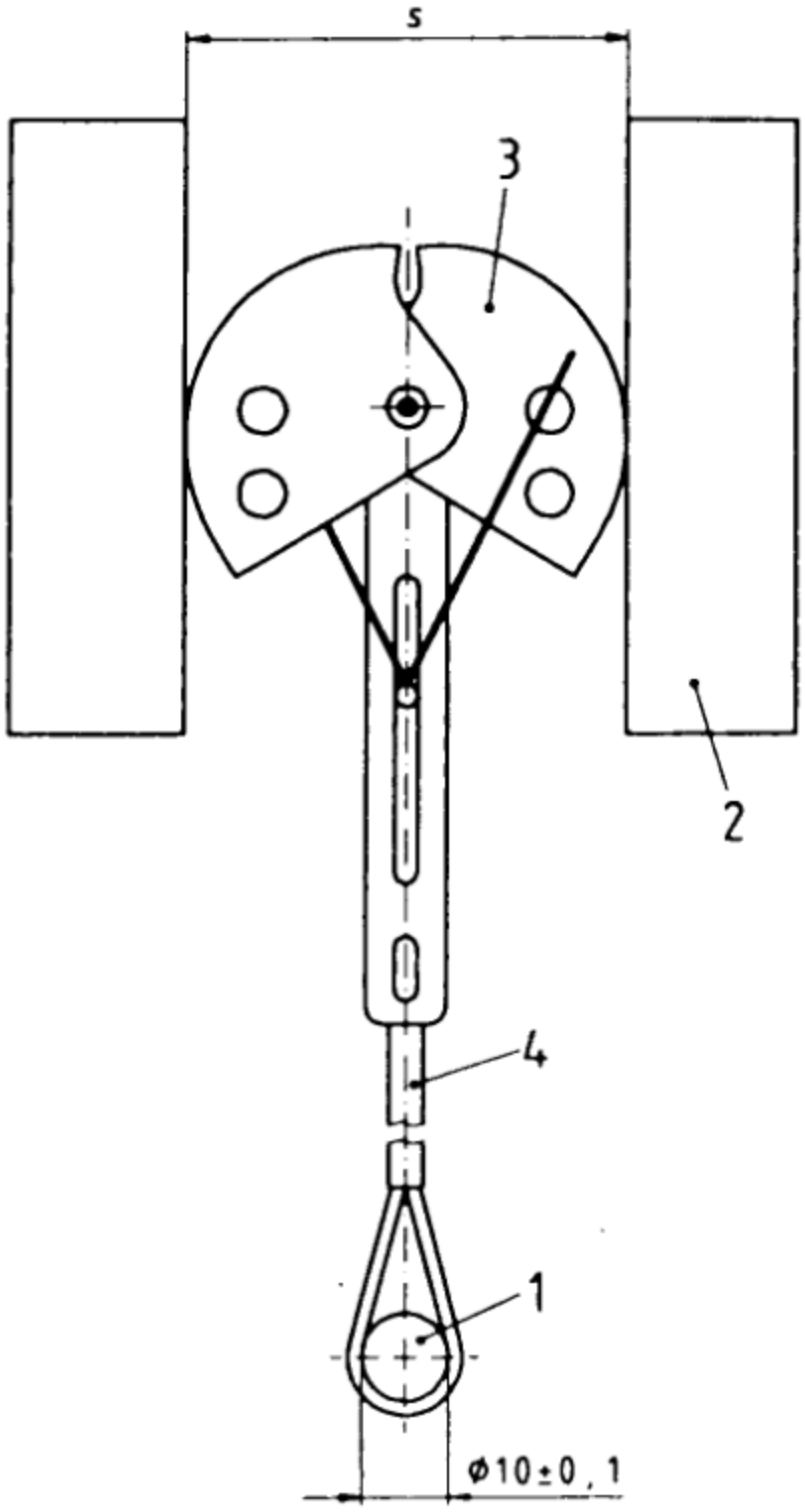


Figure 1 — Examples of frictional anchors



1) loading bar
2) supporting jaws
3) frictional anchor
4) means of attachment

Figure 2 — Layout and adjustment of apparatus

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 20139;

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

For frictional anchors with textile means of attachment, start the strength test within 3 min of removing them from the conditioning atmosphere.

5.4 Procedure

5.4.1 *Design*

5.4.1.1 Check by visual examination that the requirements according to **4.1.1** are met.

5.4.1.2 Test the unloaded eye of the means of attachment in accordance with **4.1.2**, with a pin of $(15 \pm 0{,}1)$ mm diameter.

5.4.1.3 Check by visual examination and handling that the requirements according to **4.1.3** are met.

5.4.2 *Strength*

5.4.2.1 Rate of loading:

— of 20 mm to 50 mm per minute if the frictional anchor does not contain textile elements

— of 50 mm to 200 mm per minute if the frictional anchor contains a textile element, subjected to stress during the test.

5.4.2.2 Load at least one test sample in each of positions 1 and 2.

5.4.2.3 Apply a load to each frictional anchor until it breaks or until it is pulled out of the apparatus.

6 Information to be supplied

a) the name or trademark of the manufacturer, importer or supplier;

b) the number of this European Standard: EN 12276;

c) the model (if more than one model is available);

d) the size (if more than one size is available);

e) the minimum holding force in kN, which the manufacturer ensures. The value shall be expressed as a whole number of kN.

f) the meaning of any markings on the product;

g) on the use of the product and the level of protection which it can provide;

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

i) on how to maintain and service the product;

j) on the lifespan of the product or how to assess;

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

l) on the influence of wet and icy conditions;

m) on the danger of sharp edges;

n) on the influence of storage and ageing.

7 Marking

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

a) name or trademark of the manufacturer, importer or supplier;

b) the minimum holding force in kN. The marked force shall be a whole number of kN with the unit "kN".

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	prEN 12275	*Mountaineering equipment — Connectors — Safety requirements and test methods*
3	prEN 13089	*Mountaineering equipment — Ice-tools — Safety requirements and test methods*
4	prEN 12277	*Mountaineering equipment — Harnesses — Safety requirements and test methods*
5	prEN 12492	*Mountaineering equipment — Helmets — 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	prEN 12276	*Mountaineering equipment — Frictional anchors — Safety requirements and test methods*
10	prEN 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	prEN 893	*Mountaineering equipment — Crampons — Safety requirements and test methods*
17	[1)]	*Mountaineering equipment — Descenders — Safety requirements and test methods* (00136079)
18	prEN 12278	*Mountaineering equipment — Pulleys — Safety requirements and test methods*

[1)] in preparation

Annex ZA (informative)

Clauses of this European Standard addressing essential requirements or other provisions of EU Directives

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 89/686/EEC.

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

The following clauses of this standard are likely to support requirements of Directive 89/686/EEC:

EU Directive 89/686/EEC, Annex II	Clause/sub-clause of this standard
1.1 Design principles	**4.1**, **5**
1.2 Innocuousness	**4.1.3**, **5.4.1.3**
1.3.2 Lightness and strength	**4.2**, **5.4.2**
1.4 Information supplied by the manufacturer	**6**, **7**
2.4 PPE subject to ageing	**6**n)

Compliance with the clauses of this standard provides one means of conforming with the specific essential requirements of the Directive concerned and associated EFTA regulations.

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL