

Specification for Climbers' Helmets

Co-operating organizations

The Personal Safety Equipment Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government department and scientific and industrial organizations:

British Footwear Manufacturers' Federation
 British Ironfounders' Association
 British Occupational Hygiene Society
 British Red Cross Society
 British Rubber Manufacturers' Association Ltd.
 British Steel Industry
 Cement Makers' Federation
 Chemical Industries Association
 Consumer Council
 Council of Ironfoundry Associations
 Department of Employment and Productivity (Factory Inspectorate)
 Electricity Council, The Central Electricity Generating Board and the Area Boards in England and Wales
 Federation of Civil Engineering Contractors
 Glass Manufacturers' Federation
 Industrial Safety (Personal Equipment) Manufacturers' Association
 Institute of British Foundrymen
 Institution of Civil Engineers
 Institution of Engineering Inspection
 Institution of Industrial Safety Officers
 Institution of Mechanical Engineers
 Institution of Production Engineers
 Iron and Steel Trades Confederation
 Medical Research Council
 National Federation of Building Trades Operatives
 Paintmakers Association of Great Britain
 Royal Society for the Prevention of Accidents
 Shoe and Allied Trades Research Association
 Textile Council
 Trades Union Congress
 United Kingdom Atomic Energy Authority

The following Government department and scientific and industrial organizations were directly represented on the committee entrusted with the preparation of this British Standard:

British Mountaineering Council
 Ministry of Technology
 Mountain Rescue Committee
 Protective Headwear Manufacturers' Association

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Foreword

This British Standard has been prepared at the request of the British Mountaineering Council in order to provide a reliable helmet suitable for use by all concerned with mountaineering and similar occupations, where there is a risk of falling whilst climbing and being hit by falling stones with serious head injuries as a consequence. The helmet requirements are based largely on those for motorcyclists as it was found that these presented a suitable basis from which to develop the special requirements necessary for the purpose in mind. It must always be remembered that the maximum protection is obtained only when the helmet is a good fit and the chin strap is securely fastened. The metric figures given in parenthesis may be used as alternatives to the inch measurements. The maximum transmitted force figure has been adopted from that given in the International Standards Organization Recommendation for Motorcyclists' helmets.

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.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard gives requirements for assessing the suitability of a helmet for wear by those climbing crags and mountains in order to protect the skull from injury by blows on the head resulting from falling stones or impacts during a fall.

2 Definitions

For the purposes of this British Standard the following definitions apply:

2.1 shell

the layer of hard smooth material which gives the helmet its general form and whose chief purpose is to protect the vault of the skull against fracture or penetration and to distribute impact over a large area of the head. It does not include the coverings or internal paddings

2.2 harness

the means of fitting the helmet to the head and securing it thereto

2.3 cradle

the headband or other head fitting and those internal parts of the helmet in contact with the head. The cradle may be fixed or adjustable

2.4 chin strap

that part of the harness which passes under the chin. It may have a neck strap passing behind the neck to keep it in position

2.5 neck strap

a strap embracing the back of the neck to prevent forward tilting of the helmet

2.6 protective padding material

material whose principal object is to absorb kinetic energy thus reducing the force transmitted to the head during an impact. It may be of single thickness or laminated

2.7 cushioning material

soft material used to ensure a comfortable fit of the helmet on the head

2.8 protected area

the protected area is that part of the head situated above the line a — a shown in Figure 1

3 Weight and fit

3.1 Helmets shall be as light in weight as possible for the performance required. They should be capable of giving a well-balanced and good fit on the head when worn. The protection shall well cover the temples and forehead but leave the ears as free as possible and avoid interfering with hearing, sight and movement of the head. The helmet shall be as close fitting and as well ventilated as possible.

4 Materials

4.1 Effects of climate. None of the essential properties of the materials used shall be adversely affected by exposure to moisture or to specified temperatures when submitted to the conditions described in Clause 13.

4.2 Shell. The shell of the helmet shall be made of materials which are hard, non-brittle and durable.

4.3 Harness. The manufacturer shall not use for the harness any materials known to undergo significant loss of strength, flexibility, or other physical change, as a result of contact with perspiration or oil or grease from a wearer's hair. No specific tests are laid down for this requirement.

4.4 The manufacturer shall not use for those parts of the harness coming into contact with the skin any materials known to cause diseases. For a material not in general use for harnesses, advice as to its suitability should be sought from its manufacturer or supplier.

5 Finish

5.1 All edges shall be smooth and rounded.

5.2 If any metallic parts appear on the inside of the shell, they shall be covered by protective padding material and shall be of such a form that they cannot injure the wearer's head in the event of an accident.

5.3 Any external projections permitted by Clause 6 shall be smooth and be faired into other surfaces where possible.

6 General construction

6.1 The helmets shall consist of a hard, smooth shell lined with protective padding and/or fitted with other means of energy absorption such as a cradle.

6.2 The assembled helmet shall have a smooth external surface without re-inforcing ridges. There shall be no external projections greater than $\frac{3}{16}$ in (5 mm) above the outer surface of the shell of the helmet.

6.3 Any external covering shall be seamless. Any stitching securing the harness to the shell shall be covered by protective tape.