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Head protection - Safety helmets

头部防护 安全帽

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Head protection - Safety helmets

1 Scope

This Standard specifies the classification and marking, technical requirements, inspection and identification of safety helmets.

This Standard applies to safety helmets which are used for head protection in workplaces.

This Standard does not apply to head protection equipment for firefighting, emergency rescue, sports and vehicles.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 2812, Test method of safety helmet

3 Terms and definitions

The following terms and definitions are applicable to this document.

3.1 Safety helmets

A helmet that protects the user's head from injuries which are caused by falling objects or small splashing objects and other specific factors.

Note: It is generally composed of shell, harness and accessories.

3.2 Shell

The shell of the safety helmet.

Note: It is generally composed of shell, visor, brim, top reinforcement and other parts.

3.3 Top reinforcement

A structure that is used to increase the strength of the top of the shell.

5.1.1 Do not use materials that are toxic, harmful or cause skin allergies and other harm to the human body.

5.1.2 Do not use recycled and reclaimed materials as raw materials for the stressed parts of the safety helmet (such as shell, liner strip, headband).

5.1.3 The ageing-resistant performance of the material shall not be lower than the use period that is indicated in the product marking; the safety helmets of normal use cannot have protective function failure due to the material within the use period.

5.2 Basic performance requirements

5.2.1 Headband

The headband shall be adjustable according to the applicable head circumference size that is indicated in the safety helmet marking.

5.2.2 Sweat band

The area of the headband corresponding to the forehead shall have sweat-absorbent fabric or additional sweat band. The width of the sweat band shall not be less than the width of the headband.

5.2.3 Chins strap size

If the safety helmet has a chins strap, a woven tape whose width is not less than 10 mm or a rope whose diameter is not less than 5 mm shall be used.

5.2.4 Shell

The surface of the shell cannot have bubbles, defects, or other defects that impair performance.

5.2.5 Part installation

The installation of each part of the safety helmets shall be firm, without loosening or slipping.

5.2.6 Mass (excluding accessories)

The special-type safety helmet shall not exceed 600 g; the ordinary-type safety helmet shall not exceed 430 g; the relative error between the actual product mass and the marked mass shall not exceed 5%.

5.2.7 Visor

Measure according to the method that is specified in GB/T 2812; the visor shall be ≤ 70 mm.

5.2.8 Brim

Measure according to the method that is specified in GB/T 2812; the brim shall be ≤ 70 mm.

5.2.9 Wearing height

Measure according to the method that is specified in GB/T 2812; the wearing height shall be ≥ 80 mm.

5.2.10 Vertical distance

Measure according to the method that is specified in GB/T 2812; the vertical distance shall be ≤ 50 mm.

5.2.11 Horizontal distance

Measure according to the method that is specified in GB/T 2812; the horizontal distance shall be ≥ 6 mm.

5.2.12 Projections inside the shell

The height of sharp protrusions between the inner side of the shell and the harness shall not exceed 6 mm; the protrusions shall be covered with soft cushions.

5.2.13 Vent

When the shell has vents, the total area of the vents shall not be greater than 450 mm².

5.2.14 Chins strap strength

When the safety helmet has a chins strap, test according to the method that is specified in GB/T 2812; the force value when the chins strap is damaged shall be between 150 N ~ 250 N.

5.2.15 Accessories

When the safety helmet is equipped with accessories (such as protective face screens, hearing protectors, lighting devices, communication equipment, warning signs, information devices), the accessories shall not affect the stability of the safety helmet, nor affect its normal protective functions.

5.2.16 Shock absorption performance

5.3.4.2 Perform pretreatment in accordance with the method that is specified in GB/T 2812 or Appendix A, or in accordance with Appendix A (the method that is specified in GB/T 2812 shall be preferred for arbitration inspection); after extremely high temperature ($150\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$), 1 h pretreatment, perform the puncture test; the steel pricker must not touch the surface of the head mold; the shell shall not have any fragments falling off.

5.3.5 Electrical insulation property

Test according to the method that is specified in GB/T 2812; the leakage current of the grade-G safety helmets shall not be greater than 3.0 mA; the leakage current of the grade-E safety helmets shall not be greater than 9.0 mA. When the test voltage is increased to 30 000 V, the safety helmet shall not be broken, or burned.

5.3.6 Anti-static performance

Measure according to the method that is specified in GB/T 2812; the surface resistance shall be $1 \times 10^5\ \Omega \sim 1 \times 10^{10}\ \Omega$.

5.3.7 Resistance to molten metal splash

Test according to the method that is specified in GB/T 2812 or Appendix B (the method that is specified in GB/T 2812 is preferred for arbitration inspection); the safety helmet shall not have the following conditions:

- The shell is penetrated;
- There is damage and deformation greater than 10 mm;
- The cap afterflame time is more than 5 s.

6 Inspection

6.1 General

6.1.1 Ordinary-type safety helmets shall be tested for the performances that are specified in 5.2.

6.1.2 Special-type safety helmets shall be tested for the performances that are specified in 5.2 and the corresponding performances that are specified in 5.3.

Note 1: The low temperature resistant safety helmet shall be free from shock absorption and puncture resistance after ($-10\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$) pretreatment.

- d) product name (named by the manufacturer);
- e) product classification mark;
- f) mandatory scrap period of the product.

7.3 Information that is provided by the manufacturer

Each safety helmet must be provided with a material that contains the following information, which can be provided to the end user in the form of printed matter, atlas, or wear-resistant adhesive label. It shall at least include the following contents:

- a) Warning: "When using a safety helmet, adjust the headband or chins strap according to the size of the head, so as to ensure that it is firmly worn and will not accidentally shift or slip off";
- b) Warning: "The safety helmet must be replaced after being severely impacted even if there is no obvious damage";
- c) Warning: "Unless it is performed according to the manufacturer's recommendations, any modification and replacement of the safety helmet accessories will bring danger to the user";
- d) A statement on whether it is possible to apply paint, solvent, and adhesive label on the outer surface;
- e) Name, address and contact information of the manufacturer;
- f) Declaration and information of a qualified product;
- g) Applicable and non-applicable places;
- h) Size of the applicable head circumference;
- i) Judging conditions and use period of the safety helmet;
- j) Instructions and suggestions on adjustment, assembly, use, cleaning, disinfection, maintenance, and storage;
- k) A detailed description of available accessories and spare parts (if any);
- l) Quality (the quality of the product shall be provided for the user to choose).

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