International Standard

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Protective equipment for use in ice hockey —

Part 1: General requirements

Équipements de protection destinés à être utilisés en hockey sur glace —

Partie 1: Exigences générales

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 83, *Sports and other recreational facilities and equipment*, Subcommittee SC 5, *Ice hockey equipment and facilities,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 158, *Head protection,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 10256-1:2016), which has been technically revised.

The main changes are as follows:

— Clause 2 has been added;

— Clause 3 has been moved from Clause 2 and definitions have been edited and updated;

— 4.1 has been edited and updated to include requirements and references to test methods for verification;

— 4.2 has been edited and updated to include requirements for materials (4.2.1) and design (4.2.2) and reference to test methods for verification;

— in Clause 5, test methods have been added for ergonomics (5.1) and innocuousness (5.2) in order to verify their compliance;

— Clause 7 has been edited to clarify requirements for laboratory environment conditions (7.1) and ambient sample conditioning (7.2);

— Clause 8 requirements have been edited to include observations for defects and missing components, any damage after testing, as well as identification of the test equipment used in testing;

— Clause 9 has been edited to include requirements for year and month of manufacture, the manufacturer's or importer's full postal address, and alternate labelling requirements for the same;

— Clause 10 has been edited to include clarification regarding the language used and the intended use of the product;

— Figure 1 has been improved (orientation planes).

A list of all parts in the ISO 10256 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Ice hockey is a high-speed, collision sport in which there is a risk of injury. By playing this sport, participants accept the risk of serious injury, paralysis and/or death.

The intention of protective equipment for use in ice hockey is to reduce the frequency and severity of injuries to that part of the body for which the protector is intended. The protective function is intended to distribute and dampen the force of impact and to counteract the penetration of objects applied to the protector, and in the case of neck protectors, reduce the risk of lacerations.

Education in the proper use and fitting of protective equipment is critical to its performance.

Enforcement of the rules of play and consistent officiating are also essential for best performance of the protective equipment in reducing the risk of injury.

Protective equipment for use in ice hockey —

Part 1:
General requirements

1 Scope

This document specifies general requirements and test methods for head, face, eye, neck, and body protectors (hereafter referred to as protectors) for use in ice hockey.

This document is intended only for protectors used for ice hockey.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7000:2019, *Graphical symbols for use on equipment — Registered symbols*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
plane
two-dimensional flat space extending to infinity in a facially featured headform to assist testing

3.2
basic plane of the human head
plane (3.1) located at the level of the external upper borders of the ear canal (external auditory meatus) and the inferior margins of the orbits of the eyes

3.3
basic plane of the headform
plane (3.1) relative to the headform that corresponds to the *basic plane of the human head* (3.2)

Note 1 to entry: See Figure 1.

3.4
reference plane
plane (3.1) parallel to, and at a distance *x* from the *basic plane of the headform* (3.3)

Note 1 to entry: See EN 960:2006, Figure 1, Table 1.

3.5
horizontal plane
plane (3.1) parallel to the *basic plane of the headform* (3.3)

Note 1 to entry: See Figure 1.

3.6
median plane
plane (3.1) that passes through the headform from front to back and divides the headform into right and left halves

Note 1 to entry: See Figure 1.

3.7
mid-frontal plane
plane (3.1) perpendicular to the *median plane* (3.6) and the *reference plane* (3.4), and located mid-way between the front and rear extremities of the headform at the reference plane

Note 1 to entry: See Figure 1.

4 Requirements

4.1 Ergonomics

The objective of the ergonomic assessment is to confirm that the product shall:

a) be quickly and easily adjustable;

b) fit securely;

c) in the foreseeable conditions of use, remain in place and enable the wearer to perform the movement and activities of hockey with minimal discomfort.

To verify that the protector fulfils the ergonomic requirements it is tested in accordance with the procedure in 5.1.

For this procedure, the response to all questions shall be YES.

If the answer to any question is NO, the assessment shall be stopped and the protector under test shall be deemed to have failed.

4.2 Innocuousness

4.2.1 Materials

When assessed in accordance with 5.2.1, materials and incorporated substances used in the protector shall:

a) be compatible with each other;

b) not harm individuals through contact with them;

c) be resistant to temperatures up to 70 °C without polymeric changes;

d) not be subject to any known alteration from contact with sweat or toiletries or cleaners recommended by the manufacturer.

4.2.2 Design

The protector shall be designed and manufactured so that it will not harm the user or other players during normal use. Inspection shall be made in accordance with 5.2.2.

4.3 Markings and information

Markings and information shall be as described in Clause 9 and Clause 10.

The protector markings in Clause 9 shall remain legible when tested in accordance with 5.3.

5 Test methods

5.1 Ergonomic

To assess the requirements of 4.1, an observer shall monitor the test subject's experience and answer the following questions:

a) Was it possible to put on and remove the protector without difficulty?

b) Were you able to adjust the protector according to the manufacturer's instructions?

c) Can the following movements be carried out without difficulty and does the protector remain in place during each movement:

   1) Vigorously moving (shaking) the protected body part while standing and during walking? Repeat 3 times.

   2) Bending at the waist, twisting, jumping in place, while wearing the protector? Repeat 3 times.

If the answer to any of these questions is NO, the assessment shall be stopped and the protector under test shall be deemed a failure. The observer shall provide a comment in the test report explaining the reason for failure.

The test subject shall be an ice hockey player that selects an appropriately fitting size of protector according to the manufacturer's instructions.

Unless otherwise specified, one test subject shall be evaluated for each model submitted for testing.

A model is a category of PPE that has the same essential characteristics.

5.2 Innocuousness

5.2.1 Materials

To determine that the protector materials fulfil the requirements in 4.2.1, check the documents supplied by the manufacturer.

Examples of documents supplied by the manufacturer include but are not limited to:

— materials specifications;

— safety data sheets relating to the materials;

— information relating to toxicological, allergenic, carcinogenic, toxic to reproduction or mutagenic investigations on the materials.

5.2.2 Design

To determine that the protector fulfils the requirements in 4.2.2, perform a visual and manual inspection to locate any hard or sharp edges, seams, buckles or other items that can injure the user or another player during normal use.

5.3 Markings, information for users and markings durability

Perform a visual inspection to confirm that the protector's markings and information meet the requirements in 4.3.

Under ambient conditioning, verify the durability of the markings by rubbing the marking by hand with a piece of cotton cloth soaked with water, back and forth ten times with a downward force of 10 N (±2 N). After that, record that the markings are legible.

The assessment shall be carried out by a person with normal vision to determine if the marking remains legible.

6 Tolerances

Unless otherwise specified, the tolerance of any measurement shall be ±2 %.

7 Conditioning

7.1 Laboratory environment

All testing shall be conducted in an environment in which the ambient temperature is (20 ± 2) °C with a relative humidity not exceeding 60 %.

7.2 Ambient sample conditioning

Ambient-conditioned samples shall be exposed to the conditions in 7.1 for not less than 4 h.

7.3 Low temperature sample conditioning

The sample shall be exposed to a temperature of (−25 ± 2) °C for not less than 4 h.

Testing shall begin within 40 s of removal from the refrigeration chamber.

7.4 Elevated temperature sample conditioning

The sample shall be exposed to a temperature of (30 ± 2) °C for not less than 4 h.

Testing shall begin within 40 s of removal from the heating chamber.

8 Test report

The test report shall include at least the following information:

a) a reference to this document, i.e. ISO 10256-1:2024;

b) the name or trademark of the manufacturer or authorized representative;

c) the identification details of the protector tested (i.e. type, brand, model, size);

d) where applicable, whether it is the left or the right protector;

e) the correspondence for conformity with the requirements in this document;

f) the sequence in which the protectors were tested for impact;

g) observations of defects, missing components before testing;

h) any damage to the protector after testing;

i) the location of non-prescribed impact sites according to the respective procedure;

j) identification of the test equipment used in testing;

k) the date of testing;

l) the name of testing laboratory and the name and title of the person performing the test;

m) any deviations from the procedure.

9 Markings

At minimum, each protector shall be marked with the following information:

a) the number, part and year of the applicable product standard(s);

b) the identification of the protector type, if applicable;

c) the name or trademark of the manufacturer or the manufacturer's representative;

d) the identification of the model;

e) the size or size range of the protector;

f) the year and month of manufacture;

g) the manufacturer's or importer's full postal address;

h) the standard graphical symbol informing users to read instructions for use (see ISO 7000:2019-1641).

If marking h) is not possible in view of the characteristics of the product, it shall be affixed to the packaging and in the manufacturer's instructions and information.

Where such markings include words or sentences, the latter shall be written in a language easily understood by consumers and other end-users, as determined by the market for which the product is distributed.

10 Information for users

Information for users shall be written in a language easily understood by consumers and other end-users as determined by the market for which the product is distributed.

The following information in the language(s) of the country of sale shall accompany each protector:

a) all the information in Clause 9 (except for f);

b) instructions for proper fit, comfort, and use;

c) that consumers should use care to select a protector that fits properly, is readily secured and is comfortable to use;

d) cleaning and care instructions, including proper storage. The use of cleaning agents, paints, or decals can be harmful to the protector. Consult the manufacturer for appropriate products;

e) that a protector shall be inspected before use and replaced if it is damaged in any way that can have reduced its protective function;

f) a warning that no protector can offer full protection against injuries;

g) a warning about any contamination, alteration to the protector or misuse that can dangerously reduce the performance of the protector.