
Head and face protection for use in ice hockey

*Protections de tête et de visage destinées à être utilisées en hockey sur
glace*



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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10256 was prepared by Technical Committee ISO/TC 83, *Sports and recreational equipment*, Subcommittee SC 5, *Ice hockey equipment and facilities*.

This second edition cancels and replaces ISO 10256:1996, ISO 10257:1996 and EN 967:1996.

Introduction

The intention of head and face protection is to reduce the frequency and severity of localized injuries to the head and that part of the face surrounded by the protector. The protective function is such that the force from impacts against the protector is distributed and dampened and the penetration of objects is counteracted.

Head and face protection for use in ice hockey comprise helmets and an associated face protector. Face protectors can consist of eye protectors (visors) or full-face protectors. Helmets are tested and assessed as a separate unit, but face protectors are always tested and assessed together with the helmet or helmets for which the face protector is intended.

To achieve the performance of which it is capable, and to ensure stability on the head, a helmet and associated face protector should be as closely fitting as possible consistent with comfort. In use, it is essential that the helmet and associated face protector be securely fastened, with any chin strap or neck strap adjusted according to the manufacturer's instructions.

ISO/TC 83/SC 5 is aware that specifications for the performance of the helmet and the face protector are required to reduce the risk of injury in ice hockey. There was consensus that most of today's head and face protectors meet the performance requirements of this International Standard. However, the goal of ISO/TC 83/SC 5 is to promote the use of better materials and/or constructions as they become available to meet the future requirements of the sport of ice hockey. ISO/TC 83/SC 5 is also aware that in order to provide for comfort and correct fitting and use, helmets and face protectors should have low mass consistent with providing the appropriate performance characteristics.

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Head and face protection for use in ice hockey

1 Scope

This International Standard specifies performance requirements and test methods for head and face protection for use in ice hockey.

NOTE 1 The intent is to reduce the risk of injury to the head and face without compromising the form or appeal of the game.

NOTE 2 Ice hockey is a sport in which there is a risk of injury. This International Standard is intended only for helmets and face protectors used for ice hockey. Ice hockey helmets afford no protection from neck or spinal injury. Severe head, brain or spinal injuries, including paralysis or death, may occur in spite of using an ice hockey helmet in accordance with this International Standard.

Performance requirements and test methods, where appropriate, are given for the following:

- a) construction;
- b) shock absorption;
- c) puck-impact resistance;
- d) penetration;
- e) retention-system properties;
- f) field of vision;
- g) marking and information.

The head and face protection is intended for use by

- a) players,
- b) goalkeepers and
- c) certain functionaries (e.g. referees).

2 Normative references

The following referenced documents are indispensable for the application 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 6487:2002, *Road vehicles — Measurement techniques in impact tests — Instrumentation*

EN 960:1994, *Headforms for use in the testing of protective helmets*

CAN/CSA Z262.4-00, *Ice hockey pucks*

ASTM F1446, *Standard test methods for equipment and procedures used in evaluating the performance characteristics of protective headgear*

3 Terms and definitions

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

3.1 General

3.1.1

acceleration of a body

a

(self-explanatory)

NOTE Acceleration is measured in metres per second squared, in units of g .

3.1.2

acceleration of a body due to gravity

g

(self-explanatory, $g = 9,806 \text{ m/s}^2$)

3.1.3

central vertical axis

line relative to the headform that lies in the median plane of symmetry, and that is normal to the basic plane at a point equidistant from the front and back of the headform

3.1.4

Gadd Severity Index

GSI

weighted impulse criterion measure that estimates the injury hazard to the human head based on an impact and determined from the acceleration-time wave form, and mathematically defined by the equation

$$\text{GSI} = \int_{t_0}^{t_0 + t_1} a^{2.5} dt$$

where

a is the acceleration of a body, in metres per second squared;

t is the time in seconds, at the 5 g level;

t_1 is the time of impact, i.e. pulse duration, in seconds, measured from the 5 g level.

3.1.5 Planes

3.1.5.1

basic plane of the human head

Frankfurt Horizontal

plane that is 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

3.1.5.2

basic plane of a headform

plane relative to the headform that corresponds to the basic plane of the human head