



International Standard

ISO 10256-4

Protective equipment for use in ice hockey —

Part 4: Head and face protectors for goalkeepers

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

Partie 4: Protections de tête et de visage pour les gardiens de but

**Second edition
2024-07**

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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.

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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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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 10256-4:2016), which has been technically revised.

The main changes are as follows:

- [Clause 1](#) has been modified to clarify that the standard only refers to head and face protectors for goalkeepers;
- [Clause 3](#) has been expanded to include additional definitions;
- [Clause 4](#) and [Clause 5](#) have been revised to include types of goalkeeper head and face protectors;
- information on ergonomics ([4.2](#) and [5.2](#)), innocuousness ([4.3](#) and [5.3](#)), and markings ([4.4](#) and [5.4](#)) has been added;
- [4.7](#) and [5.7](#) have been revised to clarify puck impact resistance requirements and tests;
- [5.1.2](#) has been revised;
- in [5.1.4](#), a difference between head protector tests ([5.1.4.2](#)) and face protector tests ([5.1.4.3](#)) has been added;
- in [5.5](#), [5.6](#) and [5.7](#), test procedures have been revised;
- in [5.8](#) and [5.10](#) test procedures have been added;
- in [Clause 6](#) requirements have been clarified;
- in [Clause 7](#) requirements have been updated for head protector ([7.1](#)) and for the face protector ([7.2](#)) portions of the goalkeeper head and face protector;

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- [Clause 8](#) has been expanded to provide more information regarding assembly and care of the product;
- [Table 1](#) has been expanded to include the protocol and sequencing of all tests for the goalkeeper head and face protector;
- [Figure 1](#) has been modified to illustrate the overlap of the face protector portion of goalkeeper head and face protector.

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.

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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, or death.

This document addresses the unique demands and hazards associated with the position of ice hockey goalkeeper.

Two types of goalkeeper head and face protectors are designated. Performance requirements were determined after consideration of the state of the art of head and face protective design and manufacture.

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Protective equipment for use in ice hockey —

Part 4: Head and face protectors for goalkeepers

1 Scope

This document specifies performance requirements and test methods for head and face protectors for use by ice hockey goalkeepers only.

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 10256-1:2024, *Protective equipment for use in ice hockey — Part 1: General requirements*

ISO 10256-2:2024, *Protective equipment for use in ice hockey — Part 2: Head protectors for skaters*

ISO 10256-3:2024, *Protective equipment for use in ice hockey — Part 3: Face and eye protectors for skaters*

CSA Z262.6-14, *Specifications for Facially Featured Headforms*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10256-1:2024 and the following 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

head protector

device intended to reduce the risk of head injury to ice hockey participants

3.2

face protector

device intended to reduce the risk of injury to the eyes and face of ice hockey participants

3.3

attachment

protector that can be attached or removed by the user described in the manufacturer's documentation

3.4

fastening system

devices used to connect one or more attachments to the *head protector* (3.1)

3.5

chip

readily visible particle missing from the eye or *face protector* (3.2) with an area > 9 mm²

3.6

crack

condition in which there is a break in the protector through the full thickness of the material without complete separation of parts

3.7

fracturing

condition in which there is a complete separation of any part of the protector into pieces

3.8

field of vision

extent of vision through the protector in the 'as worn' position

3.9

retention system

system that secures the *head protector* (3.1) to the head by passing under the mandible in whole or in part when adjusted in accordance with manufacturer's instructions

3.10

helmet positioning index

HPI

vertical distance measured at the median plane, from the front edge of the *head protector* (3.1) to the reference plane, when the head protector is placed on the reference headform

3.11

model

category of protector with the same essential characteristics that can come in several sizes

Note 1 to entry: Essential characteristics include:

- a) materials;
- b) construction;
- c) retention system;
- d) protective padding.

3.12

combination

unit of a face protector placed on a hockey *head protector* (3.1) with which it is intended to be used

Note 1 to entry: The head protector shall be compliant with ISO 10256-2:2024.

4 Requirements

4.1 Types of goalkeeper head and face protectors

The types of goalkeeper head and face protectors shall be as follows.

- a) Type D1 – intended for use by all goalkeepers and meeting the test blade penetration resistance for the head and face.
- b) Type D2 – intended for use by goalkeepers ≥ 18 years of age and meeting the test blade penetration resistance for the head and the test disk penetration resistance for the face.

4.2 Ergonomics

ISO 10256-1:2024, 4.1 shall apply.

4.3 Innocuousness

4.3.1 Materials

ISO 10256-1:2024, 4.2.1 shall apply.

4.3.2 Design

4.3.2.1 General requirements

ISO 10256-1:2024, 4.2.2 shall apply.

4.3.2.2 Welded wire component

ISO 10256-3:2024, 4.3.2.2.1 shall apply.

4.3.2.3 Obstruction of vision

ISO 10256-3:2024, 4.3.2.2.2 shall apply.

4.3.2.4 Attachment fastening system and airway access

ISO 10256-3:2024, 4.3.2.2.3 shall apply.

4.3.2.5 Overlap

The wire cage portion of the face protector shall overlap all edges of the head protector within the protected area of the face by at least 6 mm when viewed perpendicular to the median and frontal planes. See [Figure 1](#).

4.3.2.6 Maximum distance (headform to face protector)

ISO 10256-3:2024, 4.3.2.3.1 shall apply (see also [Figure 1](#) in this document).

4.3.2.7 Minimum load bearing area

ISO 10256-3:2024, 4.3.2.3.3 shall apply.

4.4 Markings and information

ISO 10256-1:2024, 4.3 and [Clauses 7](#) and [8](#) in this document shall apply.

4.5 Protected area

4.5.1 Protected area of the head

ISO 10256-2:2024, 4.4 shall apply.

4.5.2 Protected area of the face

When tested in accordance with [5.5.2](#), the protected area shall include the front portion extending to at least the line G'-H'-L-HL-Z-HR-H'R-G' (where L is left and R is right) in [Figure 2](#) as viewed perpendicular to the median and frontal planes.

4.6 Penetration (test blade/disk)

4.6.1 General

Except for the ear apertures (ear openings), the requirements in [4.6.2](#) and [4.6.3](#) shall apply.

4.6.2 Type D1

When tested in accordance with the applicable sections of [5.6](#), the test blade shall not contact the bare headform within the protected areas of the head and face.

4.6.3 Type D2

When tested in accordance with the applicable sections of [5.6](#):

- a) the test blade shall not contact the bare headform within the protected area of the head;
- b) the test disk shall not contact the bare headform within the protected area of the face.

4.7 Puck impact resistance

4.7.1 Contact test

For all types of goalkeeper head and face protectors, when tested in accordance with [5.7](#):

- a) neither the face protector nor the puck shall touch the facially featured headform within the no-contact zone (see ISO 10256-3:2024, Figure 4);
- b) the shock-absorbing material at the load-bearing area shall remain securely attached to the face protector;
- c) there shall be no:
 - 1) fracturing or cracking of any component of the head and face protector except for weld separations that are not wire terminals;
 - 2) chips (cracking of surface coatings may be present);
 - 3) failure of the face protector's fastening system to the head protector.

4.7.2 Toughness test

For all types of goalkeeper head and face protectors, when tested in accordance with [5.7](#), there shall be no:

- a) fracturing or cracking of any component of the head and face protector except for weld separations that are not wire terminals;
- b) weld separations at any wire end of the wire component (in the case of welded wire protectors);
- c) failure of the protector's fastening system to the head protector, and the shock-absorbing material at the load-bearing area shall remain securely attached to the face protector.

4.8 Field of vision

ISO 10256-3:2024, 4.8 shall apply.

4.9 Shock-absorbing capacity

For all types of goalkeeper head and face protectors, when tested in accordance with [5.9](#):

- a) no single impact shall exceed a peak acceleration of 275 *g* under all test conditions;
- b) the outer covering (shell) shall remain intact, with no fracturing or cracks;
- c) any size-adjustment mechanism for fit shall remain secured.

4.10 Retention system

4.10.1 Straps

The head protector shall be fitted with a retention system, allowing the head protector to be placed on or removed from the head, and consisting of a strap that passes under the mandible and fitted with a device to adjust and maintain tension in the system.

The strap that passes under the mandible shall be ≥ 13 mm wide and shall not include a chin cup.

4.10.2 Extensibility and strength

When tested in accordance with [5.10](#):

- a) the displacement of the roller holder shall be ≤ 25 mm during the load range between 5 N and 110 N;
- b) the release force shall be > 110 N and ≤ 300 N.

5 Test methods

5.1 General

5.1.1 Tolerances

Unless otherwise specified in this document, ISO 10256-1:2024, Clause 6 shall apply.

5.1.2 Samples

5.1.2.1 General

For a given model/size, four new and complete goalkeeper head and face protectors as offered for sale shall be tested in accordance with [Table 1](#).

Samples shall be numbered 1, 2, 3, and 4.

The HPI and the corresponding head protector size range shall be provided by the manufacturer.

5.1.2.2 Face protector/head protector combinations

For protectors intended to fit several models and sizes of head protectors, one such combination shall be tested completely. For compatibility with other head protectors, only the tests specified in [5.5](#), [5.6](#) and [5.7](#) for ambient conditioning shall be conducted.

5.1.3 Conditioning

ISO 10256-1:2024, Clause 7 and [Table 1](#) in this document shall apply.

5.1.4 Placing and adjusting goalkeeper head and face protector

5.1.4.1 Helmet-positioning index (HPI)

The HPI and the head and face protector size or size range shall be specified and provided by the manufacturer.

5.1.4.2 Head protector tests

The goalkeeper head and face protector shall be placed and adjusted in accordance with ISO 10256-2:2024, 5.1.4.

5.1.4.3 Face protector tests

The goalkeeper head and face protector shall be placed and adjusted on the largest facially featured headform (see CSA Z262.6-14) for its size range in accordance with the manufacturer's instructions, so that the chin portion of the face protector rests on the load-bearing area of the headform (see ISO 10256-3:2024, Figure 6) and the head protector fits as close as possible to the HPI.

5.2 Ergonomics

The goalkeeper head and face protector shall be tested in accordance with ISO 10256-1:2024, 5.1.

5.3 Innocuousness

5.3.1 Materials

The goalkeeper head and face protector shall be tested in accordance with ISO 10256-1:2024, 5.2.1.

5.3.2 Design

5.3.2.1 General

The goalkeeper head and face protector shall be tested in accordance with ISO 10256-1:2024, 5.2.2. In addition, [5.3.2.2](#) shall apply.

5.3.2.2 All types

When placed and adjusted in accordance with [5.1.4](#) the face protector shall meet the requirements in [4.3.2](#).

5.4 Markings and information

ISO 10256-1:2024, 5.3 shall apply.

5.5 Protected area (coverage)

5.5.1 Protected area of the head

The head portion of the goalkeeper head and face protector shall be tested in accordance with ISO 10256-2:2024, 5.5.

5.5.2 Protected area of the face

When placed and adjusted in accordance with [5.1.4](#), the face portion of the goalkeeper head and face protector shall meet the requirements in [4.5.2](#).

5.6 Penetration

5.6.1 Penetration test over the protected area of the head

ISO 10256-2:2024, 5.6 shall apply.

5.6.2 Penetration test over the protected area of the face

5.6.2.1 Test apparatus

The apparatus consists of

- a) a facially featured headform in accordance with CSA Z262.6-14,
- b) a steel test blade in accordance with ISO 10256-2:2024, Figure 5, and
- c) a steel test disk in accordance with [Figure 3](#).

5.6.2.2 Goalkeeper head and face protector positioning

The goalkeeper head and face protector shall be placed and adjusted in accordance with [5.1.4](#).

5.6.2.3 Penetration test for Type D1 protectors

Using the end of the test blade (without force), an attempt shall be made to contact the headform within the protected area of the face as defined in [4.5.2](#) through all the protector's openings.

5.6.2.4 Penetration test for Type D2 protectors

Using the test disk (without force), an attempt shall be made to contact the headform within the protected area of the face as defined in [4.5.2](#) through all the protector's openings.

5.7 Puck impact resistance

ISO 10256-3:2024, 5.7 shall apply except for any reference to ISO 10256-3:2024, Tables 2 and 3. Instead, [Table 1](#) in this document shall be used.

5.8 Field of vision

ISO 10256-3:2024, 5.8 shall apply.

5.9 Shock absorbing capacity

ISO 10256-2:2024, 5.8 shall apply.

If any of the prescribed impact sites cannot be reached, the following shall apply.

- a) Attempt to reach the site by removing the face protector from the complete goalkeeper protector.
- b) If the problem persists, change the prescribed site to an alternate non-prescribed site on the same protector, as close as possible to the original prescribed site and within the test area.

5.10 Retention system

ISO 10256-2:2024, 5.9 shall apply except for any reference to ISO 10256-2:2024, Figure 4. Instead, [Figure 4](#) in this document shall apply.

6 Test report

ISO 10256-1:2024, Clause 8 shall apply.

7 Markings

7.1 Head protector (used with face protector for goalkeepers)

In addition to the requirements of ISO 10256-1:2024, 4.3 and Clause 9, all types shall have the following markings:

- a) the designation “Ice Hockey Goalkeeper Head and Face Protector”;
- b) a permanent warning in a contrasting colour to the exterior of the protector informing the user of the limits of protection afforded by the head protector. The warning shall contain at minimum the following information:

Ice hockey is a sport in which there is a risk of injury. Certified protectors afford no protection from neck or spinal injuries. Severe head, brain, or spinal injuries, including paralysis or death, can occur despite using a certified protector.

NOTE The precise wording of the warning is at the discretion of the party submitting the head protector for testing.

7.2 Face protector

In addition to the requirements of ISO 10256-1:2024, 4.3 and Clause 9, all types shall have the designation “Ice Hockey Goalkeeper Head and Face Protector”.

Type D2 protectors shall have a permanent warning informing the user of the limits of protection afforded by the face protector. The warning shall contain at minimum the following information on the packaging:

Type D2 protectors will not prevent a stick blade from passing through the face protector and possibly causing serious injuries. To reduce the risk of injury, a Type D1 protector is highly recommended.

If markings are not possible in view of the characteristics of the product, they shall be affixed to the packaging and in the manufacturer's instructions and information.

8 Information for users

In addition to the markings in [Clause 7](#) in this document and requirements of ISO 10256-1:2024, Clause 10, goalkeeper head and face protectors shall have the following information for users:

- a) instructions concerning the assembly of the face protector to the head protector;
- b) the head protectors with which the face protector is intended to be used;
- c) in the case of Type D2 protectors, a warning that includes the following:
 - 1) type D2 protectors are intended for use by goalkeepers > 18 years of age;
 - 2) type D2 protectors provide only partial protection for the face;
 - 3) to minimize the risk of injury, type D1 protector is recommended;
 - 4) failure to follow this recommendation can result in serious and/or permanent injury.

ISO 10256-4:2024(en)

Table 1 — Protocol and sequence for testing goalkeeper head and face protectors

Sample no.	Test	Test location	Conditioning (see ISO 10256-1:2024, Clause 7)	Puck velocity m/s ($\pm 1,0$ m/s)	Referenced clause or subclause
Any sample	Ergonomics, innocuousness and marking	Entire protector	Ambient		4.2, 4.3, 4.4
	Protected area				4.5
	Penetration	Protected area of head and face			4.6
	Field of vision	From the eyes			4.8
1	Shock absorption capacity	6 prescribed sites (see ISO 10256-2:2024, Table 1)	Ambient		4.9
	Retention	Retention system			4.10
	Puck impact resistance – contact	Eye		33	4.7
2	Shock absorption capacity	2 non-prescribed sites (see ISO 10256-2:2024, Table 1)	Ambient		4.9
	Puck impact resistance – contact	Side		33	4.7
3	Shock absorption capacity	Impact site with the highest peak acceleration at ambient test conditions (see ISO 10256-2:2024, Table 1)	Elevated		4.9
	Puck impact resistance – contact	Mouth	Ambient	33	4.7
4	Shock absorption capacity	Impact site with the highest peak acceleration at ambient test conditions (see ISO 10256-2:2024, Table 1)	Low		4.9
	Puck impact resistance – toughness	Eye, mouth, or side		36	4.7