SLOVENSKI STANDARD
SIST EN 16805:2016

01-februar-2016

Potapljaška oprema - Potapljaške maske - Zahteve in preskusne metode

Diving equipment - Diving mask - Requirements and test methods

Tauchausrüstung - Tauchmaske - Anforderungen und Prüfverfahren

Equipement de plongée - Masque de plongée - Exigences et méthodes d'essai

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97.220.40	Oprema za športe na prostem in vodne športe	Outdoor and water sports equipment

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English Version

Diving equipment - Diving mask - Requirements and test methods

Équipement de plongée - Masque de plongée - Exigences et méthodes d'essai

Tauchausrüstung - Tauchmaske - Anforderungen und Prüfverfahren

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 16805:2015) has been prepared by Technical Committee CEN/TC 136 “Sports, playground and other recreational facilities and equipment”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2016 and conflicting national standards shall be withdrawn at the latest by June 2016.

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For relationship with EU Directive 89/686/EEC, Annex II, see informative Annex ZA, which is an integral part of this document.

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1 Scope

This European Standard specifies requirements and test methods for diving masks to protect the eyes of persons engaged in underwater activities where the user is breathing underwater.

Full face and oro-nasal masks are not covered by this European Standard.

2 Terms and definitions

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

2.1
diving mask
mask that seals on the face, that only covers the eyes and nose in a single volume

2.2
lens
transparent part(s) of the mask which enables the user to see underwater

Note 1 to entry: A diving mask can have more than one lens.

2.3
head strap
device used to maintain the diving mask on the face of the user

Note 1 to entry: The head strap may be adjustable.

2.4
buckle
device allowing adjustment of the head strap tension

2.5
face seal
part of a diving mask providing the seal against the face of the user

2.6
lens seal
part of a diving mask providing the seal against the lens

Note 1 to entry: The lens seal may also be part of the face seal.

3 Safety requirements

3.1 Design

The mask shall not have any projecting parts, or corners and edges, which can injure the user.

The mask shall be provided with means to allow the occlusion of the nasal passages, to aid ear clearing.

All parts which have to be actuated by the user underwater shall be accessible and operable even when wearing protective gloves. (Three finger gloves 6^{+2}_{0} mm thickness, doubled lined). These parts shall be designed such that the setting cannot be altered inadvertently during use.

Materials, including any anti-fogging compound specified by the manufacturer, that may come into contact with the wearer's skin shall not be known to be likely to cause irritation or any other adverse effects to health.

Testing shall be done in accordance with 4.2 and 4.6.

3.2 Lens

3.2.1 General

a) Any (main/front) lens shall not distort vision;

   Testing shall be done in accordance with 4.2 and 4.6.

b) Lens shall be attached in a reliable and tight manner to the mask;

   Testing shall be done in accordance with 4.2, 4.5 and 4.6.

c) Where anti-fogging compounds are used as intended or specified by the manufacturer, they shall be compatible to eyes, skin, nasal mucosa and to the components of the diving mask.

   Testing shall be done in accordance with 4.2.

3.2.2 Impact resistance

The lens shall be resistant against impacts.

Testing shall be done in accordance with 4.3.1.

3.2.3 Break pattern

When tested for break pattern in accordance with 4.3.2, either:

— the lens specimen remains intact;

— or no individual fragment shall weigh more than 3,6 g, and measure more than 25 mm.

Testing shall be done in accordance with 4.3.2.

3.2.4 Lens seal

Lens seal of the diving mask should provide a good seal against the lenses.

Testing shall be done in accordance with 4.5.

3.3 Head strap and attachment

Head strap and attachment shall be designed so that the diving mask can be donned and removed easily. When wetted, the head strap(s) and attachment of a diving mask shall withstand a pull force of 40 N, during 10 s, without slipping, and a pull force of 100 N, during 10 s, without detaching or slipping out of the attachment and/or buckles.

Testing shall be done in accordance with 4.4.1.

The permanent linear deformation of the head strap(s) shall not be greater than 5 % when tested at a pull force of 30 N for 10 s, measurement being carried out 30 min after pulling.

Testing shall be done in accordance with 4.4.2.

3.4 Face seal

Face seal of the diving mask should provide a good seal on the face. All parts of the face seal coming into contact with the face shall be smoothly finished.

Testing shall be done in accordance with 4.2 and 4.6.

4 Test methods

4.1 General

Unless otherwise specified, the values stated in this standard are expressed as nominal values. Unless otherwise specified, values shall be subject to a tolerance of ± 5 %. Unless otherwise specified, the room temperature for testing shall be (24 ± 8) °C and at a relative humidity of at least 50 %. The temperature limits with no specified tolerance shall be subject to an accuracy of ± 3 °C.

4.2 Visual inspection

Visual inspection shall be conducted at normal visual acuity.

The visual inspection shall include tactual examination and the assessment of the device marking, information supplied by the manufacturer and any safety data sheet.

4.3 Lens

4.3.1 Impact resistance

Impact resistance shall be tested using a completely assembled diving mask mounted on a rigid support such that a steel ball (25,4 mm diameter, 66 g) falls normally from a height of 130 cm onto the lens.

If the mask provides a separate lens for each eye or a single lens covering both eyes of a regular shape (e.g. round, oval, rectangular), the steel ball shall hit the geometric centre of the lens within a 25 mm diameter.

If a single lens covers both eyes and is of an irregular shape (e.g. with a nose indent), two separate tests shall be conducted where the steel ball hit a modified geometric centre over each eye within a 25 mm diameter.

The lens shall not break.

4.3.2 Break pattern

Same procedure as 4.3.1, but the height from which the ball is dropped shall be as follow: starting at 3 m, that height shall increase by 50 cm increments up to 5 m and then at a maximum of 5,3 m. The height shall be increased until the lens breaks or the maximum height is reached.

Lens tested shall be enclosed in a polyethylene bag to facilitate fragment identification (the thickness of the polyethylene bag covering the lens shall not exceed 0,075 mm).

Interpretation of results: the test for break pattern shall be judged to have satisfactorily completed if one of the following criteria are met:

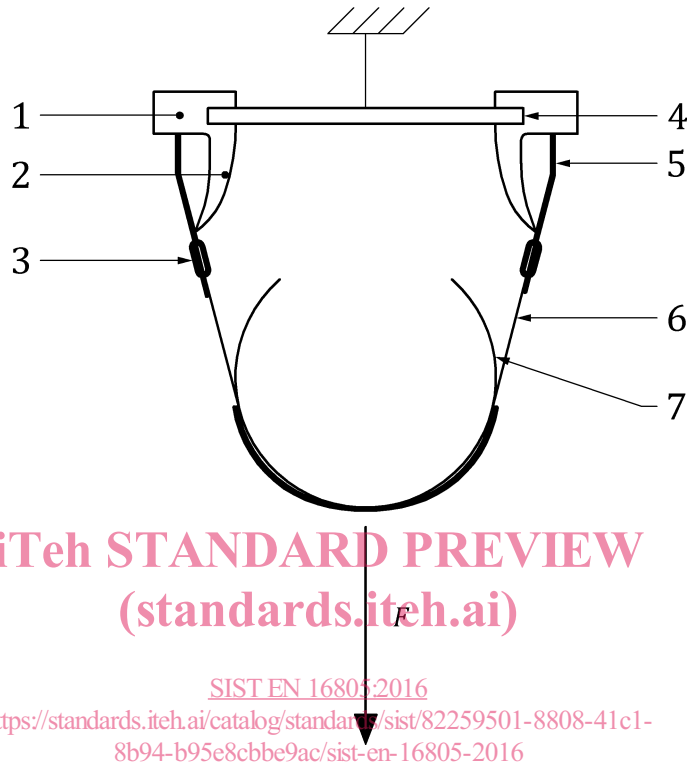
— the lens specimen remains intact after an impact from the $5_{0}^{0,3}$ m ball drop;

— the break pattern shall exhibit a spalled surface of innumerable small pieces, which may be described as granular, across and through the entire lens area. The lens shall be inspected 3 min after the impact. Any fragment, free of any crack, shall be measured and weighted.

4.4 Head strap

4.4.1 Resistance to slipping

The diving mask shall be fixed on a support as shown in Figure 1. Each head strap adjustment shall be set to its mid-point. The pull force shall be applied as shown in Figure 1.



Key

1 frame
2 face seal
3 retention strap
4 lens
5 attachment and/or buckle
6 head strap
7 PVC tube, 125 mm diameter
F force

Figure 1 — Test configuration for resistance to slipping

4.4.2 Permanent linear deformation

Test three samples: one end of the strap is fixed, apply the force to the free end of the head strap as shown in Figure 2. Measure the permanent linear deformation 30 min after the pull test.