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SIST EN 1972:2016

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Potapljaška oprema - Dihalke - Varnostne zahteve in preskusne metode

Diving equipment - Snorkels - Requirements and test methods

Tauch-Zubehör - Schnorchel - Sicherheitstechnische Anforderungen und Prüfverfahren

Équipement de plongée - Tubas - Exigences et méthodes d'essais

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Diving equipment - Snorkels - Requirements and test methods

Équipement de plongée - Tubas - Exigences et méthodes d'essais

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This European Standard was approved by CEN on 7 November 2015.

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European foreword

This document (EN 1972:2015) 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of an identical text or by endorsement, at the latest by June 2016 and conflicting national standards shall be withdrawn at the latest by June 2016.

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

This document supersedes EN 1972:1997.

In comparison with the previous edition EN 1972:1997, the following significant changes have been made:

a) updating of definition of snorkel and mouthpiece;

b) definition of two class A and B for the dimension of snorkel;

c) addition of requirements for shut-off valves;

d) introduction or updating of new test methods such as visual inspection, tests for dimensions, resistance to air flow, joint strength and practical performance;

e) requirements on marking;

f) requirements on information supplied by the manufacturer.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

A snorkel allows the user to breathe, when swimming in a prone position, without having to raise the mouth out of the water.

1 Scope

This European Standard specifies safety requirements in order to increase the safety in the use of snorkels for swimmers and divers.

This European Standard is applicable to snorkels, which allow users to breathe at the water surface whilst floating with the face submerged. It covers snorkels used by swimmers and divers.

This European Standard is not applicable to combined face masks and snorkels, in which the snorkel tube opens into face mask.

2 Terms and definitions

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

2.1
snorkel
device composed of a hose and/or tube with a mouthpiece, allowing a user to breathe while swimming in a prone position; it may also include optional devices such as valves and water deflectors

2.2
mouthpiece
part of the snorkel, usually held by the teeth, sealing against the lips and through which air is inhaled and exhaled

3 Requirements

3.1 General

The snorkel shall not have any projecting parts, or corners and edges, which can cause injury.

Test in accordance with 4.1 and 4.5.

3.2 Dimensions

The dimensions of a snorkel shall comply with Table 1.

Table 1 — Dimensions

Class	Application	Total inner volume[a] ml max.	*L*[b] mm max.
A	people with large lung capacities	230	380
B	people with small lung capacity (e.g. children)	150	350

[a] The total inner volume representing the dead space of the snorkel for respiratory exchange.

[b] Linear distance between the centre of the mouthpiece opening and the lowest part of the air intake opening.

Test in accordance with 4.1 and 4.2.

3.3 Mouthpiece

The mouthpiece material shall not be known to be likely to cause irritation or any other adverse effects to health.

The mouthpiece shall be designed so that is easily retained in the mouth, e.g. using lug(s) for gripping between the teeth.

All parts of the mouthpiece coming in contact with the oral mucosa shall be smoothly finished.

The end of the tube shall not extend beyond the mouthpiece into the mouth.

Test in accordance with 4.1 and 4.5.

3.4 Resistance to air flow

When tested in accordance with 4.3, the peak respiratory pressure of the snorkel during inhalation and exhalation shall be within the range of ± 10 mbar.

3.5 Joints

When tested in accordance with 4.4 with an axial force of 30 N for 10 s, joints shall show no signs of disengagement.

3.6 Optional devices

3.6.1 Snorkel keeping device

Any snorkel keeping device affixed to the tube to prevent loss of the snorkel in use, shall be arranged in such a way that the position of the snorkel can be adjusted.

The snorkel keeping device shall enable the snorkel to be displaced from the mouth and replaced without having to displace the face mask.

Test in accordance with 4.1 and 4.5.

3.6.2 Shut-off valves

If a shut-off valve to prevent the ingress of water is fitted, it shall only shut off when submerged. After being submerged the valve shall easily open on the first exhalation.

Test in accordance with 4.5.

4 Test methods

4.1 Visual inspection

Visual inspection shall be conducted at normal visual acuity.

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

4.2 Testing of dimensions

The inner volume of the snorkel may be determined either by dimensional measurement and calculation or by filling the snorkel with water.

Put the snorkel with its mouthpiece in a position that it would be during normal use.

Determine the linear distance *L* between the centre of the mouthpiece opening and the lowest part of the air intake opening.

4.3 Resistance to air flow test

Connect the mouthpiece to a breathing simulator.

Set the breathing simulator to a sinusoidal operation of 25 strokes/min with 2,5 l/stroke at ambient pressure and temperature.

The deviation between frequency and amplitude shall not be more than ± 3 %.

Take the pressure recording at the mouthpiece.

Continue the measurement until steady-state is achieved.

4.4 Joint strength test

A tensile testing machine or a dead weight arrangement with means for measuring with accuracy of ± 2 N over the whole measuring range shall be used.

Apply a load of (30 ± 2) N across the joint at a uniform rate over 5 s.

Maintain the force for 10 s and examine the joint for any damage.

4.5 Practical performance test

4.5.1 General

For reasons of safety, practical performance tests should be carried out only after all laboratory tests, according to 4.1 to 4.4, have been satisfactorily completed.

4.5.2 Test subjects

The snorkel shall be tested by subjects who are practicing regularly with snorkels.

4.5.3 Basic testing

Each test subject shall make a test swim which include at least two submersions to a depth of at least 1 m.

During the test the snorkel will be subjectively assessed by the user and the user's comments on the following points shall be recorded after the test:

a) snorkel comfort;

b) security of any joints and attachments;

c) adjustment of the mouthpiece and any snorkel keeping device;

d) ease of breathing and of opening of any shut-off valve on the first exhalation;

e) any other comments reported by the user on request.

4.5.4 Report

A record with a final report of the tests performed with the test persons shall be kept.